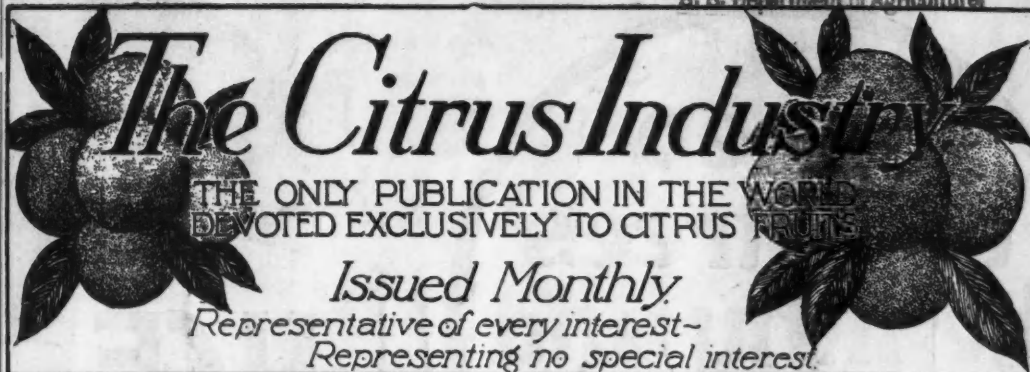


80
C 49

LIBRARY
RECEIVED
SEP 24 1924

135 +8

U. S. Department of Agriculture



The Citrus Industry

THE ONLY PUBLICATION IN THE WORLD
DEVOTED EXCLUSIVELY TO CITRUS FRUITS

Issued Monthly
Representative of every interest—
Representing no special interest.

VOL. 5, NO. 9 TAMPA, FLA., SEPTEMBER, 1924 15 CTS. A COPY



"Down To The Sea In Ships"

A list of steamship lines using Blue Goose oranges and grapefruit would approximate a roster of the leading lines touching the principal ports of the United States.

The preference of steamship stewards for fruits distinguished by the Blue Goose trademark in no small part accounts for the ever widening export of them to foreign lands.

Last March an American sat down to breakfast aboard ship at Colombo, Ceylon, and was served a Blue Goose grapefruit. He thought it of sufficient interest to write us about it.

Again, writing from Europe, one of the principal American fruit handlers asked us how we had managed to obtain the distribution of Blue Goose grapefruit in Great Britain and on the Continent which he had encountered there.

The answer is simply persistent advertising, backed by consistent effort to maintain a standardization which will justify the faith and confidence of both trade and consumers.

American Fruit Growers Inc.

Orlando,



Florida

ANNUAL BETTER FRUIT NUMBER



**Keep
your trees
healthy and
your fruit
clean**

USE

EMULSO
THE BETTER SPRAY

**kills white fly
and scale insects**

A thorough spraying this fall will rid your trees of these pests and clean off sooty mold.

Buying the best is always most economical. Hundreds of growers have reached this conclusion after using EMULSO, "The Better Spray." They have judged the quality and efficiency of EMULSO by actual results.

All products made or distributed by the Peninsular Chemical Company are backed by an expert field service. This puts at the growers' command years of insecticide experience. This service is maintained for actual use. It is a working part of the business. You are invited to use it freely.

PENINSULAR CHEMICAL CO.

Orlando, Florida

There is every assurance that the Citrus Industry of this state is soon going to be on a firm substantial footing. The grower may expect fair prices for his product next winter and in the years to come.

The forward looking planter will therefore lay his plans to round out his acreage and right now reserve the choicest trees to insure his getting exactly what he wants.

"Glen Trees Grow"

Glen Saint Mary Nurseries Company

Winter Haven

Florida

Glen Saint Mary

Over forty-two years of Satisfied Customers has made this the largest
Citrus Nursery in Florida.

Don't ship green fruit!

Help Florida's Greatest Industry To Pay Real Dividends Every Year



The Florida Citrus Exchange guarantees all fruit shipped as Sealdsweet to conform to the spirit of the law against green fruit. Make certain that your fruit is properly marketed — have it shipped under the Sealdsweet brand.

Anybody can ship green fruit these first weeks and get a few dollars. That may not be difficult.

But the far-sighted shipper—he who works for future as well as present profits—will not.

He knows that green fruit kills the interest of the consumer and trade north in Florida fruit.

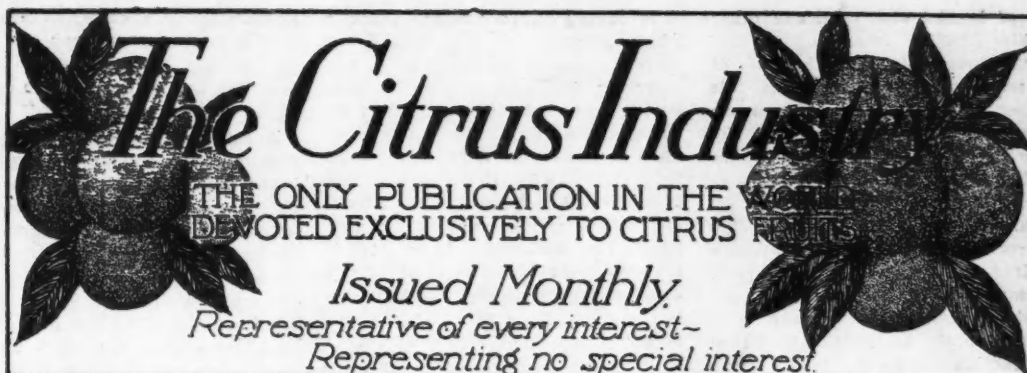
He realizes that green fruit helps drop the bottom out of the market for the balance of the Florida crop.

He has experienced the result. He, together with all shippers, has figured in red instead of counting profits.

And he will do all in his power to stop a practice that tends to bring about another poor season.

Don't ship green fruit. Play fair with the industry. It pays.

FLORIDA CITRUS EXCHANGE



Vol. 5

TAMPA, FLA., SEPTEMBER, 1924

No. 9

Spraying to Produce Quality Fruit

By Chas. M. Hunt, at Farmers' Week Meeting

The program shows that my talk is to be "Spraying to Produce Better Quality Fruit." I believe that over sixty per cent of the grove acreage of today is being sprayed by commercial spray men rather than by the owners themselves. Therefore I am going to base my talk on "Commercial Spraying," which to be successful, must produce quality fruit. The grove owner may hire himself to do his own spraying, and, when such is the case, it is necessary that he have the information that a commercial sprayer needs. Let us consider what the commercial sprayer must offer if his services are to be worth while. Primarily, he must be a practical entomologist and pathologist; secondarily, a good business man. He must know the life history of the various pests and diseases to be found in his properties; he must know their weaknesses, that point in their life cycle at which they are most susceptible to the action of insecticides and fungicides; and he must know what will effect a kill, as well as the best method by which to apply it, and be familiar with its action on foliage of host plants in the varying conditions of temperature and moisture met with daily.

Besides this he must know what it costs him to operate his spraying outfit and how these costs are distributed. The cost statement is essential to a successful enterprise in commercial spraying.

In considering the cost of spraying we may divide it into two divisions;

that is, into the (1) initial cost of outfit, and (2) the cost of operation. The initial cost of outfit might well be itemized as follows:

1. One 200-gal. capacity spray outfit, \$600.00; 2.—One team of mules large enough to pull outfit, \$500.00; 3.—One wagon trailer to carry materials, mule feed, etc., \$50.00; 4.—Since water has to be hauled to a majority of the groves, a second team of mules, wagon and water barrels will be found necessary, \$600.00; 5.—In addition to this, one duster has been recently found necessary, \$400.00; Making the initial cost a considerable sum, \$2,150.00.

This is the smallest spray unit possible for a man to have in order to do efficient work; it will care for a maximum of 150 acres. The cost of operation may be divided into overhead costs and actual operating expenses. Overhead costs are based on initial cost of the outfit, and, in estimating them, we must remember that an outfit works only about 150 days per year and that its life is from three to four years. Figuring on this basis overhead cost on the spray outfit alone may be stated thus:

- 1.—Interest at 8%—\$172.00 per year—150 days per year, \$1.10 day; 2.—Depreciation on sprayer and duster, \$200.00 per year, 150 days per year, \$1.35 day; 3.—Repairs, \$1.00 day. Making a conservative estimate of overhead costs, \$3.45 per day.

Actual operating expenses are somewhat more and may be calculated as

follows:

- 1.—Gas and oil, \$1.00 day; 2.—A three man crew; good steady men, skilled workers paid accordingly; one foreman and engine man @ \$3.00 per day and two nozzle men @ \$2.75 a day, making, \$8.50 a day; 3.—Mule feed at dollar per head per day, \$2.00 day; Making the total of actual operating expenses, \$11.50 per day.

This added to the \$3.45 a day overhead cost gives us the sum of \$14.95 as the total cost of operating the spraying rig per day. And at that we have not considered losses from rain which are very hard to figure but which should be counted in as overhead. Then too the men and mules must be kept in employ the rest of the days of the year scattered along among the 150 spray days; this is generally managed by grove work taken on in connection with commercial spraying. The above cost statement does not include charge for supervision of outfit or for services of the practical entomologist and pathologist upon whose prescription of what with which to spray, and when, and how, depends in no small degree the quality and quantity of fruit marketed and consequently the grower's profit.

Twenty dollars per day is the average price charged by commercial sprayers. This method of charging by the day seems best from all viewpoints. A ten hour day is used; the grower pays for the time going to and coming from the grove; and, in

case of breakdowns, rain, and other troubles causing delays of one-half hour or longer, deduction is made at the rate charged. Charging in this manner, both grower and sprayer are protected. You may feel that the difference between fourteen dollars ninety-eight cents operating expenses and twenty dollars charged is too much. But consider a moment. This difference of five dollars a day, one hundred and fifty days in the year, amounts to \$750. This what our commercial sprayer gets for his time of supervision, the prescription he makes and the knowledge he uses to protect the grower, which knowledge it has taken him years to accumulate. Seven hundred and fifty dollars a year he gets for giving the grower 150 acres of clean bright fruit and trees in condition to produce an even larger crop the following year.

What does this practical entomologist have to know to produce quality fruit at a reasonable cost? It would be impossible for me to try to tell in detail in so short a time as is allotted me this morning, just what he should know, that is, why, when, how, and what with which to spray, dust or treat all the different insect pests and diseases in order to control them and produce quality fruit. I will merely sketch the offhand information which the commercial sprayer should have in order to use to the best advantage the usual 150 spray days of the year. These days are distributed over the year in four periods for the better understanding of which I have prepared the following chart:

1. January (10-15 days)

(1) Bordeaux 4-4-50—Scab, Melanose, Withertip. Followed by: (2) Oil Insecticide—Scale.

2. February-April (20-30 days)

(1) Lime-Sulphur 1-40—Rust Mites, Melanose, Scab, Red Spider, (thrips add nicotine) (2) Lime Sulphur 1-40—Scab, (Rust Mites), (Scale Crawlers). (3) Tobacco Spray?—Aphis.

3. May-August (50-60 days)

(1) Lime Sulphur 1-70—Rust Mites. (2) Oil Emulsion 1-65—White Fly, Scales, (Mealy Bug), (Rust Mite).

4. Sept.-Dec. (40-50 days)

(1). Oil Emulsion 1-65—White Fly. (2) Lime Sulphur 1-70—Rust Mite. (3) Oil Emulsion—Scales (clean up fruit and trees) (4) Lime Sulphur 1-40—Rust Mite.

The first period is from 10 to 15 days in January when spraying should be done to assist in the control of scab, melanose, and withertip, and all fungus diseases. Citrus scab is widely distributed over the state and is found on several citrus varieties.

It is caused by a fungus parasite which appears on the surface of leaves, young twigs and fruit as circular or irregular scabby masses. Fruit attacked when young often becomes misshapen and a severe shedding of newly set fruit may result. Scab only attacks its host during the first six weeks of new growth or fruiting, and must be sprayed for just before this period and twice later if scab-free fruit is to be obtained. A 4-4-50 bordeaux mixture should give the best results. The old foliage, branches and interior of trees should be thoroughly covered with the solution to kill any scab spores that may have lodged there. Grapefruit is the only variety of any great commercial importance which must be sprayed for the control of scab.

Melanose is probably the most common disease in Florida groves. It is caused by a fungus which is found abundantly in dead wood, twigs, etc., hence it is most severe in groves which contain large amounts of dead wood and branches. It is a disease of the leaves, twigs and fruit, and appears in the form of raised, hard, brown spots with glazed surfaces and circular outlines. These spots may run together forming irregular masses, streaks and spots which feel rough like sand paper. The fungus will attack new growth and fruit from the time the bloom drops until four or five months later whenever the spores come in contact with a surface wet with rain or dew. Three things are necessary for the development of melanose: (1) young growth, (2) moisture, (3) spores. By keeping out dead wood the spores are removed, hence very little melanose will develop. It is no easy task to control melanose and a systematic effort will be necessary to reduce the injury in groves where the disease is well established. A thorough system of pruning must be combined with spraying to obtain good results; immediately following the winter pruning and before the new growth starts a thorough application of bordeaux mixture 4-4-50 formula is advisable, followed by careful lime-sulphur spraying in the spring.

Withertip is a frequent source of trouble. It is also a disease of the twigs and branches which attacks weakened tissue but seldom appears when trees are in a vigorous condition. During its attack the twigs and branches become withered, leaves yellow, and much dead wood is found in severe cases. Injury to fruit by withertip is of two types, one called tear stain, the other anthracnose. Tear stain appears as reddish-brown,

longitudinal streaks which are flush with the surface and look like stains on the rind; it may develop any time after the fruit is half mature up until it is ready to pick

Anthracnose sometimes appears on mature or nearly mature fruit as a brown or dark colored patch; these patches vary in size and general appearance; decay usually follows them, rendering the fruit useless. Another form of anthracnose appears as small, red, sunken blotches which develop rapidly, especially after fruit is picked; these spots are often unnoticeable before packing, hence the injury is an insidious one. Pruning seems to be the most effective method of controlling withertip; winter pruning being preferable. Immediately following this pruning a thorough application of bordeaux mixture of 4-4-50 formula is advisable. It is better to use this preventive spraying than to wait, running the chance of infection of mature fruit with anthracnose which spreads rapidly under moist conditions and would soon ruin the crop. The Bordeaux mixture used against scab, melanose and withertip kills beneficial fungi also, hence such a fungicide should be followed immediately by an oil spray to control scales which might develop too rapidly in the absence of beneficial fungi.

The next period of spraying begins in February during the bloom and may continue into April, or about thirty days. It is during this period that the timely spraying must be done to help produce bright fruit. At this time we should spray into the bloom, when one-third to one-half of the petals are off, with 1-40 lime sulphur, in order to get the jump on our different pests such as rust mite, red spider, scab and melanose. This will also kill some thrips. However, if many thrips are present, nicotine sulphate should be added, 13 ounces in 100 gallons of solution. If there is rainy weather during this period which is favorable to scab infection, another spraying of lime sulphur should be applied, this acts as the third spraying for scab recommended previously and will help control rust mites, other mites and scales. From the present indications, another insect to be handled during this spraying period will be the aphids. As this subject will be discussed completely later in the program, I will not take up your time with it here.

The next intensive period of spraying will be for about sixty days during May, June, July and August. It is during this period of spraying that the temperatures should be watched carefully as a strong oil spray, and

especially a strong lime-sulphur solution, applied when the temperature is above 90°, will cause a large amount of burning of both foliage and fruit. The principal pests to watch for during this period are rust mites, white fly, scale insects such as purple, Florida red, chaff and long scales, and mealy bug.

Rust mite is one of the most expensive of our citrus pests. It is a sucking insect which extracts the oil from both leaves and fruit, although its damage to the fruit attracts the most attention. As a result of its action the rind takes on a russet brown color and the fruit fails to develop normally. The mite itself is very small and must be searched for with a hand lens; it is light yellow, wedge-shaped, broadest in front and tapers uniformly toward the posterior end. They multiply most rapidly during dry weather; but from the 15th of May to the 15th of August is the really dangerous period. However, they are liable to cause damage during any month of the year. Hence a close watch should be kept all the time. How rapidly they multiply may be illustrated by the experience of a spray outfit with which I am acquainted. On a Saturday the horticulturist went over the groves and found very little rust mite present; the following Wednesday, five days later, he made another inspection and found so many rust mites in all of them that he immediately set going both his dusters and his spray machines. This serves to illustrate the rapidity of their reproduction. Efficient control calls for constant vigilance; if spraying be delayed until rust appears on the fruit, it will be too late. The only way to be sure of having bright fruit is to watch constantly and as soon as the rust mites are noticed in any quantity, apply the spray or dust. Lime sulphur at a strength of 1-70 in hot weather is undoubtedly the best spray to use for rust mite. However, if quick work is necessary, dusting with lime-sulphur dust will give fine results.

For white fly, mealy bug and scale insects, oil emulsion spray should be used. During late April and May, whitefly is at the stage in its life cycle when it is most susceptible to the action of insecticides, that is, when most of the eggs have hatched yet few of the larvae have reached the third or pupa stage at which time they do most of their damage. If the flight of the adults is watched and spray applied two weeks after they become noticeably less, the control measure ought to be effective for the

spring brood. Fruit at this time should be one inch in diameter; if it is smaller than this, spraying should be postponed a bit as younger fruit is liable to be injured from the spray.

Next to white fly, purple scale has proved most destructive in the Florida citrus groves. Like white fly and all other true bugs, scales are sucking insects and draw large quantities of sap from the twigs, leaves and other portions of the tree to which they attach themselves, thus stunting the growth of the tree. Aside from this, scale abundant on the fruit will ruin its appearance and quality. Mature purple scale is oyster shell shaped, purplish brown, and one-eighth inch in length. All stages except some of the older females and the eggs under the scales are killed by the oil spray; but in case of a heavy infestation a second spraying should follow a month after the first in the summer time and six weeks after in the winter. The same control measures used for white fly will control purple scale if carefully carried out. There are, however, exceptions; namely, when a fungicide has been used, such as bordeaux, which kills beneficial as well as harmful fungi, leaving the scales to multiply uninhibited by their natural enemies. It has been proven time and again that it is absolutely necessary to follow almost immediately a bordeaux, or even a bordeaux oil, spray by an oil spray in order to keep scale insects under control. The other exception is when there is little or no white fly in the grove and purple scale becomes abundant; then the best time to spray is mid April, late October or November. Chaff and long scales are not so serious and respond to the same spraying schedule used for purple scale.

Florida red scale is more pernicious than purple scale but does less damage due to its less frequent occurrence. It is one-twelfth to one-forty-eighth inch in diameter, dark brown, with a light reddish-brown center. The same oil emulsions which are used against purple scale are best for this scale also. However, because of the thickness and heaviness of the scale which hugs the fruit closely the mature females and the eggs under the scales are not easily killed, making it necessary, in case of a heavy infestation, that two sprayings be applied, and that the diluted spray material be just as strong as possible without injury to the foliage of the host plant. When a second spraying is necessary it should be applied from four to six weeks after the first. If spraying is being done for the control of whitefly it will

very likely also control this scale; however, if the grove is not infested with white fly this scale should be sprayed for in late summer or early fall, or both, depending mainly on the degree of infestation. There are other minor insects which seldom ever get bad enough in a grove to make it necessary to spray for them alone; they are very susceptible to parasitic attacks which, combined with the spraying done for other insects, keep them under control. Some of these are as follows: Soft brown scale, cottony cushion scale, wax scale, red spider, six-spotted mite, thrips, etc.

The citrus mealy bug is becoming more and more a serious pest. The female bug is one-tenth to one-fourth inch long and is white to light brown; she lays in a cottony mass 350 to 400 eggs which hatch in eight to ten days in the summer time. These insects secrete a sticky honey-dew easily infected with sooty mold which gives a dirty appearance to the fruit and makes vigorous scrubbing necessary to bring out the natural bright color. Mealy bug is common over the entire state and gets especially bad during the dry seasons in spring and fall. Its favorite place of feeding is in the sheltered nook formed by two or more fruit in contact, consequently it is found more abundantly on grapefruit than orange. Some years mealy bug seems to be fairly well controlled by its natural enemies; but spraying is the best means of reducing its numbers. In spraying for this insect it is very necessary that the spray be applied with a high pressure; greater benefit is derived by actually washing them off the tree than by the killing effect of the insecticide. The insecticide recommended for white fly and scales may be used for this pest also.

The next spraying period covers between forty and fifty days during the months of September, October, November and December. The insects and diseases to look out for during this period are white fly, rust mite, and scales. In September, spraying for white fly is necessary, using the same oil spray as in the spring, and the same care being taken to watch the flight of adults as was advised at that period. If this spray is used at this time, it will be able to control the small amount of rust mite present during September; however, if this oil spray is not used it will be necessary to keep a close watch for rust mite and if they become numerous, spray or dust immediately with lime sulphur. In October, November and December, if there are

Eight

many scales, especially purple and Florida red, present in the groves, and, if there has been no oil spraying done in September for whitefly, we should apply an oil emulsion spray. At this time the trees are in a more or less dormant condition, the temperature is lower, and by November a strong solution even 1-40 can be used without much danger to the trees. This is quite often called a clean up spray and many growers apply it in November or December on general principles regardless of whether or not they have much scale present. It will also take care of rust mite during these months; but if it is not put on, a watch must be kept for rust mite and, if necessary, they should be sprayed or dusted. I have heard the remark a number of times this past year that the rust mite is getting to be an insect that must be watched closely for every day in the year and sprayed for every other day.

Hence it appears, that in order to be sure to control the pests most prevalent and common in practically all groves that the trees be sprayed (1) into the bloom with 1-40 lime-sulphur, shown in period 2. (2) Again with lime-sulphur 1-70 in summer period 3. Other pests and diseases may make other and different sprayings necessary in different localities but these three sprayings are almost essential everywhere as the ground work of the other sprayings.

In addition to a knowledge of costs and insects, efficient equipment and proper application of the spray materials are very necessary if good results are to be obtained. By efficient equipment we mean mainly a machine that will carry as a minimum 250 pounds pressure continuously. It is important to maintain this or a higher pressure regardless of what kind of spray material we are using or what insect or disease we are spraying for. High pressure means that a penetrating fine mist will be applied, and as a majority of our insects are killed by contact spray you will see that a high pressure with the resulting fine mist will reach a considerable larger number of insects than spray applied with a low pressure and coarse drops.

The judicial use of guns or rods, single or double nozzle, is also important. I honestly believe that it is almost a waste of time and money to spray a budded citrus tree under ten years old with a gun. I would recommend the use of guns only when spraying large seedling trees or budded trees of such size that the tops cannot be reached with a rod. The

THE CITRUS INDUSTRY

only time I would recommend the use of single nozzle is when spraying with a machine which carries less than 250 pounds pressure, or when spraying into the clusters of fruit for the control of mealy bug.

Proper application depends entirely on the man handling the rod, the main point is to cover the tree thoroughly both inside and out. Mr. Yothers' bulletin on spraying gives very valuable information along this line.

As there are 101 other details one should know to achieve real success as a commercial sprayer such as high pressure spraying; proper spray materials to use and their strength; the effect of hard and soft water on spray materials, etc., all of which are adequately explained in bulletins No. 148 and 150 published by the Experiment Station, and Nos. 215, 1118 and 933 by Yothers and Winston, and the spray schedule Bulletin No. 30 resulting from the combined efforts of the leading pathologists and entomologists of the state. I am sure that you can arrange to get these bulletins while you are here at Gainesville. Consequently I will not take up your time further except to summarize "That Quality Fruit by Spraying" means efficient equipment and spray hands; knowledge of the common diseases and insects of Florida groves; application of the proper spray material at the time when the best results will be obtained; it also means keeping up to date with new methods worked out to control old troubles as well as the nature of new troubles and their control, which means getting on the mailing list for the State and Government Bulletins.

WEST FLORIDA GROWS

SATSUMA AND GRAPES

Milton, (Fla.) Gazette: The Editor of the Gazette spent Saturday and Sunday visiting at the home, and viewing the activities of Mr. William A. Sessoms, of Bonifay. While away we visited the Round Lake Satsuma development project, where we saw thousands of Satsuma trees that had been put out this season, since the January freeze, that were looking fine. We also saw several fine groves that had come through that freeze, with but slight damage, as a result of having been properly cultivated and carefully banked prior to the freeze. What we saw there convinces us that banking is at least one of the best possible protections against cold for Satsuma and other Citrus fruits.

Another thing that impressed us

very forcibly was the splendid showing made on the Round Lake Development holdings with grapes, both the scuppernong and the bunch grapes. There were several hundred of each of these vines that were properly pruned and trellised and were yielding from a half to a bushel per vine. The only question, as we see it in regard to the grape culture, not only in the Round Lake section, but in all this section is that of marketing, as there is no longer any question about production, it is assured. In regard to the matter of marketing, Mr. Sessoms believes that it will be necessary to establish a plant for the utilization of these grapes, converting them into grape juice, and possibly devising other methods of preserving them in a way that will command a ready market.

The section of the country we visited is also making rapid strides in the matter of tobacco growing, this work, also being under the direction, largely of Mr. Sessoms, who is of the opinion that the farmers will make from seventy-five to one hundred dollars per acre on this crop.

A visit to the Glen St. Mary Nursery where large numbers of satsumas and roses are being propagated for the market was a matter of interest, this, of course being their western branch, about four miles out from Chipley, where development has been under way for the past two years.

COMPOSITION OF CITRUS FRUITS VARIES ACCORDING TO STRAINS

Some differences in the composition of lemons from different strains of trees exist, says the United States Department of Agriculture. Are these differences significant? Experimental studies have been carried on to determine whether or not there are characteristic differences in the composition of citrus fruits which can be correlated with the physical characteristics of the fruit produced by trees or branches of trees belonging to different strains. The results of the work have been published in Department Bulletin No. 1255.

This bulletin will be of interest to plant experiment and research workers and may be secured upon request, so long as the supply lasts, from the United States Department of Agriculture, Washington, D. C.

Let's take better care of our farm machines this year. The watchword is clean, oil and house.

Some Field Observations on the New Aphis

By K. E. Bradon, Winter Haven, Fla., at Farmers' Week Meeting

The speaker first observed the new citrus aphid in the spring of 1923 near Sarasota and Bradentown. Reports show that it was also present in Pinellas and Hillsborough Counties at the same time. Very little attention was given to the insect then as it was thought to be the melon aphid, which has been noticed on citrus trees for many years. The new aphid appeared also during the summer and fall of the same year, but still the damage was not causing any general uneasiness.

With the appearance of the general flush of spring growth this year, however, there has been a different story to tell. The damage was so severe as to attract closer attention of entomologists, and they soon determined that we had a new enemy to contend with. This time the insects appeared in such numbers as to be overwhelming in some sections—particularly Manatee, Sarasota, Hillsborough, Pinellas, Lee and Polk counties. They also appeared in somewhat lesser numbers in other counties farther north, east and south.

The damage to many trees, particularly trees ten years old or younger, has been such that no growth could form during the spring. Nearly all the fruit dropped, and the little that remained was warty and deformed. Older trees as a rule did not suffer so greatly, but many did lose considerable fruit and growth, and the fruit was at first very rough and unsightly in appearance. It is a pleasure to state, however, that practically all of the fruit is now growing out of this condition, and promises to be normal when mature.

Grapefruit trees seem to have been nearly immune from attack, although isolated cases of infestation have been noted. All varieties of oranges seem to have been severely attacked, and the kid glove varieties seem to have suffered more than the round oranges. Perhaps this is due in part to the fact that tangerines and kings put out their growth later than other varieties and were then subject to attack by the hordes of aphids that were already bred and ready for them. Orange trees that put out an early bloom and growth in February escaped with little or no injury, thus showing that

the development of the aphids was greater as the new growth became more general and abundant.

This summer the pest has extended its territory still farther to the north, east and south, but not in such numbers as to cause severe injury except in isolated cases. Trees that were severely injured in the spring have, as a rule, made good recovery this summer. This recovery has not been complete, however, and the great loss of early fruit has not been made up by a June bloom. In the sections of the state visited by the speaker recently there has been little or no late bloom. Many and various attempts to force a late bloom by applications of nitrate of soda, heavy amounts of regular fertilizer mixtures, extra cultivation, etc., have been made, but with practically no success.

The root stock seems to have made no difference in the abundance of the insects. They were equally severe on sweet seedlings, sour stock, and lemon stock trees. As a rule, however, trees budded to lemon stock have made better growth and shown greater recovery than those budded to sour stock.

Spraying and dusting with many kinds of materials were attempted as means of control, but the speaker is forced to take the stand that these operations did not pay in actual results for the materials and labor involved. Although a large percentage of the aphids would be killed, others would fly into the groves and reinfest them so quickly that very little good was done. A number of growers claimed good results, but investigation generally proved that the infestations were either very light in the first place, or the growth had already hardened to such an extent that the aphids would have left the trees anyway. The aphids will live only on very tender growth, and long before it has reached its full development they will leave in search of younger growth or perish for lack of food.

Since spraying or dusting does not seem to be practical, the grower naturally asks what hope he may have for the future. The best hope that can be held out is that we may never have such an infestation of aphids again as occurred this last spring. The

history of the citrus industry in Florida shows that every new insect pest that has been introduced and threatened for a time to engulf us in ruin has always been controlled in time and to a certain degree by natural enemies—either insect enemies or fungous diseases, or both. The speaker believes that the same will happen to this latest enemy. Already many parasites have been observed attacking the new aphid, and what seems to be a fungous disease has been noted. We should cheer up and not admit that the citrus industry is either doomed or even seriously threatened by this insect.

We can derive a very healthy lesson from this latest experience, however. It is entirely possible that the pest was introduced into Florida, perhaps from other states. The point of introduction seems to have been on the west coast, from which it has spread with remarkable rapidity. This aphid could have been brought in very easily on carefully inspected nursery stock. While it does not lay eggs in Florida it does do so in the colder sections of the country, and the inspector of nursery stock would hardly be expected to find these tiny eggs even after the most careful inspection. Florida has long been the "dumping ground" for insect pests and diseases of plants from all parts of the world, and until a comparatively few years ago there was nothing to stop this dumping. Finally the State Plant Board was organized at a time when citrus canker—another introduced pest—threatened to wipe out the citrus industry, and has since done much to keep out such undesirable visitors by placing certain quarantines and requiring careful inspection of all nursery stock admitted from other states or moving about within our own state. It would now seem as though this Board would have to go a step farther and either prohibit the entry of all nursery stock and plants from other states and countries, or at least require the fumigation of all plants admitted. This fumigation should be carried out by our own state inspectors at inspection stations. This would seem hard to growers of nur-

Analysis of Citrus Nursery Situation

By F. M. O'Byrne, Nursery Inspector, Florida State Plant Board
at Farmers' Week Meeting

I am now well started into my tenth year as State Nursery Inspector and so should be qualified to speak on the past, present and future of the nursery business in Florida. My remarks about the future, however, will be limited strictly to the very immediate future, as I am neither a prophet nor the son of a prophet.

My first connection with the nurs-

ery inspector. For example, a small nurseryman with one-fourth an acre and two thousand buds might be charged \$5.00 inspection fee and \$15.00 as his share of the traveling expenses, a total of \$20.00 or one cent per tree. The big nurseryman with 50 acres of nursery stock and 500,000 trees would be charged \$5.00 inspection fee, plus \$12.50 acreage fee, plus \$15.00 traveling expenses, a total of \$32.50, or a little over .006 of a cent per tree. With this grievance some very good men claimed they felt justified in violating the requirements of the nursery inspection law. This was

a bad situation for if you will talk to some old grower in almost any community, he will tell you how whitefly was introduced into that section—generally on an illegal movement of nursery stock. But when canker became established in the state this situation became intolerable for the little nurseryman vied with the big one when it came to spreading canker.

It will doubtless be a surprise to many of you to know that ten years inspection records show that three and one-half times as many canker infected trees were found in nurseries as in groves. We found one canker



F. M. O'Byrne

ery inspection work started in 1914 as canker inspector in the East Coast and assistant nursery inspector for that same district. At that time there were 149 nurseries under inspection in the entire state and many times that number doing a clandestine local business completely outside the law. These were what you might call "back yard" nurseries but many of them were of some size and did a considerable local business.

The clandestine nurserymen justified their doing business in that way by saying that the inspection law was unjust and discriminatory, favoring the big nurseries and oppressing the little fellow. They made this claim because the inspection fee was \$5.00 plus 25 cents per acre and a part of the traveling expenses of

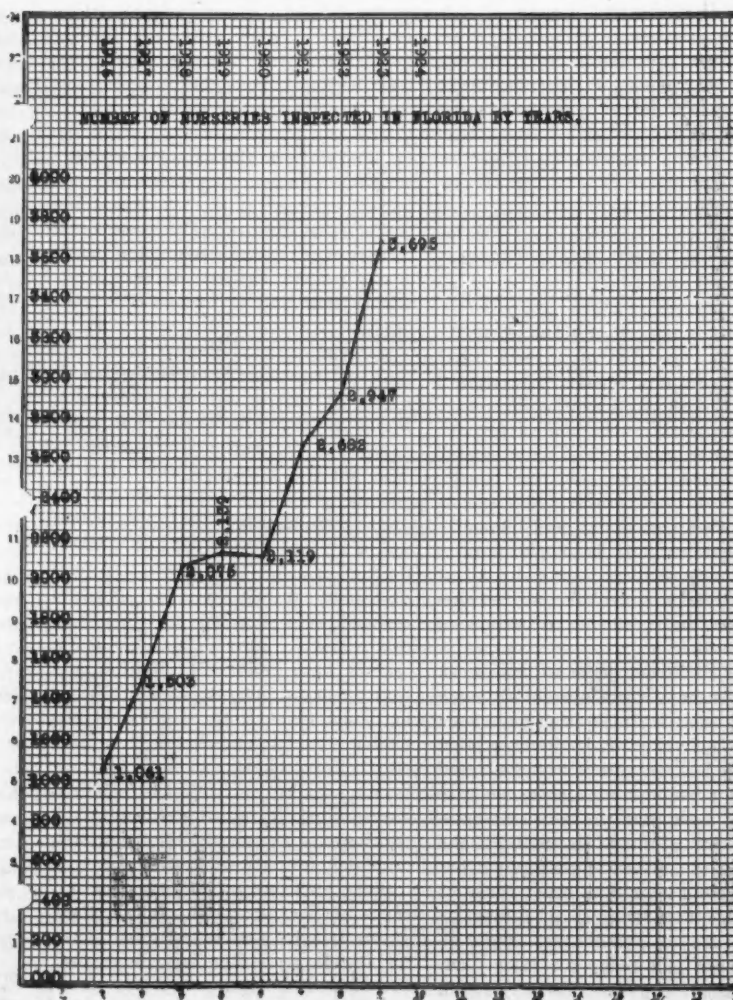


Chart No. 1

infected nursery tree to every 1,600 inspected, while we had to inspect 5,500 grove trees, on the average, to find one canker infected tree.

Some nurserymen fought the canker eradication work and the law was found to be worthless so the Florida Plant Act was passed in 1915. One of the first steps taken by the Plant Board was to establish the present Nursery Inspection Department. It is with pardonable pride, perhaps, that we call attention to the fact that citrus canker has never, apparently, been carried by trees certified by this department.

As soon as the new Nursery Inspection Department was established several assistant nursery inspectors were employed and the systematic inspection of all the nurseries in the state, row by row, was undertaken. Everyone realized the importance of bringing all nurseries, regardless of size, under inspection and the fees complained of by the small nurserymen were abolished. As a result, the number of nurseries under inspection jumped from 225 to 1,061 in one year. The number of nurseries has been steadily increasing to date (see chart 1). Last year there were 3,695 nurseries under inspection.

The growth in the citrus nursery business in Florida during the nine year period under discussion has been phenomenal. The price of fruit was excellent during and immediately following the war and grove values went soaring. Grove developments started with a rush. The results were to be seen in the large number of citrus nurseries that sprang up all over the state. The trend may be clearly seen by reference to this chart which shows graphically the amount of citrus stock that was moved each year. Note the rapidity with which the amount has risen during the three year period just ended.

This same growth is shown by the number of nurseries to which certificates were issued each year. Notice that the big increase has again been during the three years just past.

So much for the nursery situation in the past. What is the situation at present? I am giving away no trade secrets when I say that the situation—so far as citrus nursery stock is concerned—is very unsatisfactory from the nurseryman's view point. There has been neither prudence nor caution about the citrus nursery development of the last few years. Most everyone has been going into it and most of them have been making some money; quite a number of them, big money. Three years ago we faced over-production and would have had a smash had Cali-

fornia not experienced a disastrous freeze which cut off the supply of stock that they were under contract to ship to Texas. Just as some Florida nurserymen were thinking of cutting their prices, they began to receive special delivery letters and telegrams from Texas and they were saved. Once more they ended the season with practically no surplus on hand. But now the situation is different. We have had a bad citrus season. Grove planting in Florida dropped off tremendously last winter. While Texas is still buying, they are buying less heavily and they will take but a fraction of the stock offered. It is safe to say that most nurserymen will carry over a large surplus at the end of the year. The situation is all too apparent by a casual reading of nursery ads in any agricultural paper. There can be but one explanation for the large amount of stock that is being offered at truly bargain prices. ☪

Seedlings are now standing in the seedbeds. The only nurseries that are lining out seedlings into nursery rows are those that have been in the business for years and expect to stay in the business for many years to come. Many nurserymen will lose in the next two or three years most of what they have made during the past three or four.

The nurserymen who have enough stock on rough lemon are in particularly bad shape. Rough lemon was over-boomed for a while. There are certain sections of the state where rough lemon is the logical stock and will be used for years to come, but some people were planting it on almost all soils because of its well-known ability to produce a tree quickly. Citrus on rough lemon is more largely over-produced at present than on any other kind of stock. Nurserymen with sour orange stock is not in quite such a bad fix for his territory has been expanding in

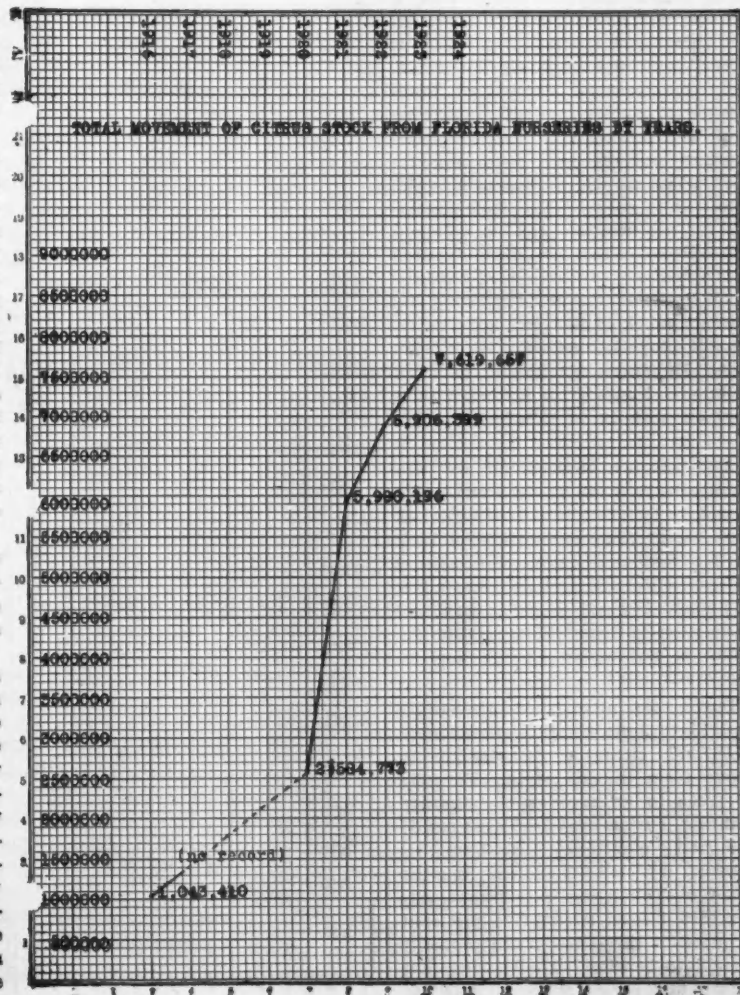


Chart No. 2

the last few years right here in Florida and he also has Texas to look to. However, it is safe to predict that we will be able to buy trees more cheaply during the next two or three seasons than we have for the past six or seven years. If you are planning to plant a grove now or in the near future, you needn't figure at all on raising your trees. You can buy more cheaply than you can raise them and you will not have to wait.

Let me digress for a moment to say that raising your own trees for a planting is generally a very expensive way to get them. It is something I've had a great deal of experience with, both directly and indirectly. My advice would be, "Unless you are going into it on a big scale—Don't raise your own." There are good practical reasons for this advice. If you were getting a suit of clothes, would you make it yourself or hire a tailor? You can waste a lot of time and money, seedlings, budwood, and waxed cloth learning to be a nurseryman. Better not tackle it at all unless you are going to follow it after you have learned the trade.

In the past we have had three groups of nurserymen: the commercial nurseryman, the surplus nurseryman and the back yard nurseryman. The surplus nurseryman is the one who is growing his stock primarily for his own use and he will sell the surplus which prudence requires him to raise. The back yard nurseryman is the man who is growing his nursery stock in his back yard or on vacant property, generally as a side line. He may be a budder in some commercial nursery or a former nurseryman who is in the business on the side.

The surplus nurseryman we will have always with us, but my guess would be that they will become fewer and fewer. The heyday of the back yard nurseryman has gone forever, I believe. We will always have a few but when they sell out what they now have most of them will quit. The demand is not active enough now to prove attractive.

During the eight years from July 1, 1915 to June 30, 1923, there were 13,067,377 citrus trees planted in grove form in this state. Figuring 70 trees to an acre as the average planting, during the eight year period our grove plantings have been increased by 188,105 acres. Barring some overwhelming catastrophe like the 1895 freeze, twenty-five per cent or more of these trees will probably come into bearing. This means that during this period approximately 40,000 acres have been added to our

THE CITRUS INDUSTRY

groves which are now bearing or will soon come into bearing.

The man who believes we are headed straight for over-production of citrus fruits will doubtless be glad to get these figures. He is welcome to them because the advocate of under-distribution can have them too.

And now for my venture into the field of prophecy and here my opinion is worth no more than yours. I get letters from nurserymen regularly asking me what the prospects are in the nursery business and what the present trend is, showing that the nurserymen themselves are badly confused.

I believe that the number of citrus nurseries is going to decrease markedly. This decrease may be slow for many have their stock now and will hold on to it till sold or so large that it is unsalable. Many of these trees will become stunted before they are finally moved. Stunted trees are generally a poor investment.

The nursery business will be more complicated and more highly specialized in the future. Our ideas about root stocks are unsettled. We now hear much talk about Cleopatra, sweet seedling, bittersweet, and even grapefruit as stocks. The growers and nurserymen will join to demand more work on root stocks by the Experiment Station. Meanwhile, sour orange and rough lemon will remain our two leading stocks.

In the future, culling of seedlings will be practiced more commonly by nurserymen. New methods of propagating may come into commercial use in the case of some varieties. Budwood will be selected with more care; we have been terribly careless in this matter in the past. But the budwood question is a vexed problem indeed. Don't form conclusions too quickly and don't demand the impossible of a nurseryman. To do so merely favors the unscrupulous.

Continued on page 24

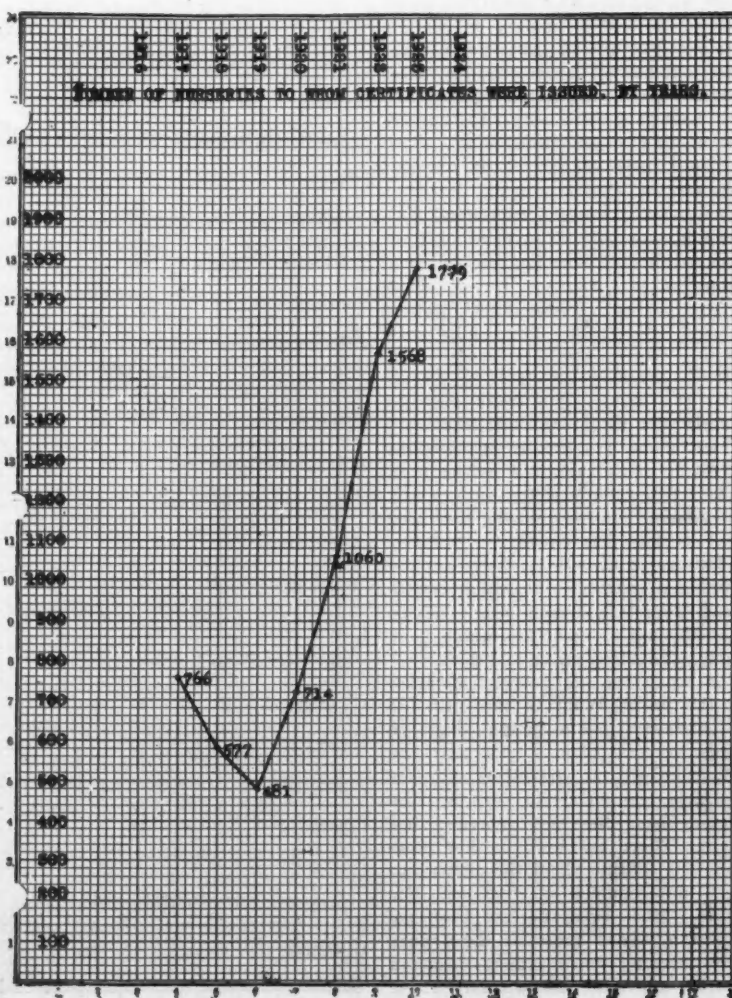


Chart No. 3

Citrus Fruit Arriving on the Market

By E. H. Talton, DeLand, Fla., at Farmers' Week Meeting

Citrus growers of experience are fully aware that the methods used and employed at the picking and shipping end are in a large way responsible for the condition in which the fruit arrives at destination.

Citrus growers, both large and small, are interested in the best methods, economical and practical, that will put their fruit on the market in its best condition. My first subject in order is:

Picking

Employ good men, pay consistent wages, as this is hard work and should be well paid for. Furnish good equipment, use strong ladders, but light ones, and good picking bags with broad, comfortable, wide stoops to carry the heavy load of fruit that a good fast picker will carry.

Have good clippers, keep them well sharpened, and insist on having all stems closely cut so as to avoid injury to other fruit in the same box by the stems puncturing the fruit. Much damage is caused in this way, and a grower cannot be too particular right here.

Number all the men and have them number all of their boxes, as this gives a check on all the men at all times. This number should be on each end of the box. A chalk mark is easily rubbed out for repeated numbering, either for the same man or others, and it does not mark out easily by the weather. The enameled school crayon is the kind to use.

Good strong picking bags are much better than baskets for harvesting, as the baskets have too much rough surface about them unless they are well lined, and more damage comes from emptying from a basket than from a sack. Neither should have any metal about them, if possible to avoid it, on account of bruising the fruit. A leather on the bag that supports the bag when picking is preferable to a chain, because in drawing the bag through the boxes in emptying the chain will injure the fruit when the leather would not.

A picker should pass all fruit from his hands to the bag instead of cutting the fruit and letting it drop from the limb to the bottom of the bag. This is a common practice of

fast pickers and is one of the main sources of injury to fruit, as it not only hurts the fruit that it falls on but hurts the one that falls, doing double damage. This practice is universal in the state and is one of the hardest things to control. It may become necessary to let a man go in order to impress the importance to the other pickers that you intend to have your orders in this particular obeyed. Of course, a good foreman with good judgment and a thorough understanding of conditions is necessary where a large acreage is being handled.

Hauling

All hauling should be done with considerable care. Boxes should not be set on top of boxes that are too full. This, I am convinced, is one of the main sources of injury to fruit in hauling. Then too, I consider springs to a wagon or to a truck of very great importance in preventing injury.

The more the spring, the less the injury. The rack will carry fruit from the sides without having to put one box upon another and having a long reach in order to give a spring to the load is a fine thing. These are being used in some parts of Volusia County and are a grand success. H. H. Stevens, General Manager of the John B. Stetson Groves at DeLand, Florida, is the original inventor of this kind of a carrier for citrus fruits. These carriers are inexpensive and almost any carpenter can make one. If fruit is convenient, two men can load one in ten minutes and with much more ease than an ordinary two horse wagon can be loaded. I have seen nothing that will protect the fruit in transportation from the grove to the packing house like this rack gives. Every box occupies its own space and does not come in contact with any other box. These racks carry thirty-two standard boxes but could be made to carry more or less according to individual requirements. These racks can be put on trucks the same as wagons.

Packing and Packing House Machinery

This is something that we can only generalize on. Growers all know that

there is all the difference in the world between well packed and poorly packed fruit. Well packed fruit is attractive and invites the buyer's attention at once when he sees the box opened in the markets, and we all admit that the appearance of the packed box has very much to do with the ready sale of the fruit as well as the quality, and it therefore behooves us to employ the very best packers to perform this part of the work for us. There are generally good men enough to be had to do this work. They, too, should all be numbered and each packer's number put on the box somewhere so that it can be checked up on any time in the packing house, or after the fruit arrives in the market. Some packers take pride in doing their work well while others do not. A good packing house foreman will soon detect who the ones are that he can depend upon to do the work well and he can then eliminate the slouchy fellows, keeping the careful ones.

All machinery should be carefully gone over from time to time to ascertain if there are any tacks, wire, or other rough places in the grading belts, about the washer, sizers as one of the worst things we have to deal with in our operations in getting fruit to the car from the groves are the small bruises that we do not readily see and are hidden from view. To guard against these things we have to be constantly on our watch and then some things will get by us, but there is always one consolation, and that is we can always do the best possible in all these matters.

Loading

Perhaps there is not so much that can be said here. At the same time, there is a great deal of difference in the way growers load. I believe we should always load a car, having in mind that at the best the fruit is going to be jammed hard enough before it reaches the market, regardless of whether there is a careful engineer at the throttle, for to be sure the more careful he is the better the fruit will go through.

Let us load the car leaving just as

The Citrus Industry

ISSUED MONTHLY

By

ASSOCIATED PUBLICATIONS CORPORATION
TAMPA, FLORIDA

S. L. FRISBIE, Editor and Manager

H. L. WALL, Advertising Manager

A. G. MANN, Production Manager

TELEPHONE:

Editorial and Business Office

4819

Subscription \$1.00 per year in advance

Entered as second-class matter February 16, 1920, at the postoffice at Tampa, Florida, under the act of March 3, 1879.

Branch office and production plant, Bartow, Florida.

GROVE CALENDAR FOR SEPTEMBER

Timely Suggestions for Grove Operations During the Present Month

Spray citrus trees with an oil emulsion for whitefly and purple scale.

Cut the cover crop of cow peas or beggarweed to avoid an infestation of pumpkin bugs.

Make preparations for your fall application of fertilizer.

Spray pecan trees with lead arsenate (2 pounds to 5 gallons of water) to control leaf case bearer.

Continue spraying with bordeaux to control scab.

FOR BETTER FLORIDA FRUIT

The Citrus Industry this month presents its annual "Better Fruit Number."

The Citrus Industry recognizes, as it believes every intelligent grower realizes, that the outstanding need of the industry in Florida is the production and marketing of better fruit. To this end it is the practice of The Citrus Industry to issue each year in September an annual "Better Fruit Number" in which the views, practices and experiences of leading fruit producers and marketers are given for the benefit of the fruit producers of Florida and other southern citrus producing sections.

Many factors enter into the production of better fruit. Care must be taken in the selection of proper location and soil. Root stocks must be adapted to the soil and to the variety of fruit to be produced. Due consideration must be given to the problem of cultivation and drainage and irrigation. The trees must secure proper plant food through well balanced fertilization. The

trees must be kept in healthy condition by proper application of sprays and dusts to prevent plant diseases and insect pests. After all these factors have been properly applied the fruit must be placed upon the market in attractive wraps and containers if the grower is to receive the maximum price and a reasonable profit for his fruit.

It is the custom of The Citrus Industry in its annual "Better Fruit Number" to emphasize the importance of each of these factors, assigning each subject to a writer of recognized experience and authority. This year's list of writers handling these subjects is particularly strong, embracing as it does many of the leaders in the industry, both practical grove men and technical experts.

We believe that a careful perusal of the many able articles presented in this number will do much toward encouraging the production of better fruit by Florida growers.

GREEN FRUIT SHIPMENTS

Unquestionably the greatest factor in the disastrous situation which confronted the citrus growers last year was the shipment of green fruit. Other factors, it is true, entered into the situation to complicate matters and render the situation worse for growers. But the initial factor and the one which had the greatest bearing upon the situation was the flooding of northern markets early in the season with heavy shipments of unripe and unfit fruit—fruit which never should have left the tree for another month or six weeks at the earliest. This fruit dumped in quantities on the northern market killed the demand for Florida fruit at the outset and later shipments found the market demoralized to an extent which nothing could overcome.

It is to be hoped that the Florida growers and shippers now fully realize the utter folly and suicidal effect of making shipments of any but fully ripened fruit. It is to be hoped that no Florida shipper will permit his greed to influence him in shipping unripe fruit this year.

That the situation is fully recognized by leading shippers is evidenced by public expression being given. Last month Mr. W. H. Mouser of Chase & Company sounded warning in a paper printed in The Citrus Industry. This month President L. C. Edwards of the Florida Citrus Exchange and Manager F. L. Skelly of the American Fruit Growers, Inc., strongly condemn the practice of green fruit shipment and pledge their organizations to combat the practice. Other marketing agencies are taking a similar stand.

The Citrus Industry sincerely hopes that the policy announced by these and other organizations may become the universal policy of the Florida shippers. If it does, the worst factor with which Florida growers have had to contend will be eliminated, but if the practice of shipping green fruit is permitted to continue, a repetition of last year's disastrous situation may be expected.

Every grower, every marketing agency, every individual shipper and every well wisher of Florida should unite in the demand that no green fruit, whether precolored or otherwise shall be permitted to leave the state. Insofar as federal

or state laws cover the situation, they should be invoked to put an end to the practice.

ANOTHER BIG DEVELOPMENT

The Palmer Estates of Sarasota County has begun actual work on one of the greatest sub-tropical developments in South Florida; one which promises much in the development of sub-tropical fruits in this section.

At the death of Mrs. Honore Palmer some years ago she left an estate of many thousands of acres of undeveloped land in what is now Sarasota County. This large acreage was incorporated as the Palmer Estates and some effort at development was begun a few years ago but it is only recently that much real progress has been made. Now, however, vast drainage projects are under way, the planting of citrus, avocado, mangoes and other sub-tropical fruit is being made on a large scale and other development work is actively in progress.

The actual work is in charge of Mr. L. D. Niles, formerly of Lucerne Park, who is well known as one of the most practical and expert grove developers in the state. Mr. Niles had charge of the development of the Lucerne Park groves which at that time constituted the largest single planting in the state.

BEAUTIFUL FLORIDA

The above is the title of a new publication just issued at Orlando in the interest of the beautification of Florida highways, though the matter of beautification of the grounds of schools and other public properties as well as the beautification of private grounds is covered.

Mr. Karl Lehmann of Orlando, is editor and publisher and is assisted in the work by Helen Lehmann and Mr. W. A. Cook, which is a guarantee that "Beautiful Florida" will be well edited.

Florida has been bountifully blessed by nature in the matter of beauty of scenery. It is the aim of "Beautiful Florida" to encourage men and women to aid nature in making Florida the most beautiful state in the Union.

LET'S FORGET IT

For some reason which no one seems able to explain, a lot of people and many newspapers have fallen into the habit of mis-naming one of Florida's most popular fruits. We all know better, yet we continue in spite of this knowledge to follow the "line of least resistance" and cast dishonor upon a worthy fruit. The writer pleads guilty to having fallen into this error at times in the past, but he promises never to do so again.

We have reference to the tendency of many of our own Florida people to refer to the avocado as a "pear." As a matter of fact, the avocado is not a pear, not an alligator pear, not even an avocado pear. It is simply and solely an avocado, without prefix or affix. The word pear has no connection nor relationship to the avocado—the king of salad dishes.

Let's forget it. The writer hereby pledges himself to right now and forever forswear the

use of the misleading and qualifying word in connection with this kingly fruit. Henceforth and forever, let it be first and only—the avocado.

THE ORANGE

Walt Mason, the Kansas humorist, has this to say of the orange, in one of his prose poems:

"The orange is a noble fruit, a wondrous virtue in it lies; when it is near, I care no hoot if I lack turkeys, roasts and pies. The orange grows upon a tree and is not fashioned in a mill; it grows out doors and it is free from punk preservatives that kill. Developed in the sunny air, the mellow zephyrs make it sweet, and no adult-erants are there to warp men's vitals as they eat. All its ingredients are fine and it is wholesome through and through; no poison dyes of aniline have given it its golden hue. Long since when I had grievous pain athwart my midriff and my spine a wise physician said, 'In vain will you take pills and drugs of mine; fruit acids are the stuff you need to make your works as good as new; eat oranges—this is my rule—eat oranges the long day through. And so I eat them when I rise, I eat them ere I go to bed, I eat this fruit instead of pies, instead of codfish balls and bread. I have cut out the baker bakes, and now I'm full of rich red blood and fit to whip my weight in snakes. I'm bearded like old Santa Claus and once my whiskers wouldn't grow; new teeth are growing in my jaws and like a rooster oft I crow. We eat too much of patent things, of victuals cooked upon a stove; and still the golden orange swings out yonder in the sunlit grove."

BRAZILIANS WOULD SHIP ORANGES HERE

Brazil's orange industry is growing, there now being four districts where this fruit is produced. In the state of Sao Paulo, the harvesting season commences during April and May, Trade Commissioner, R. M. Connell, Sao Paulo, informs the Department of Commerce. In the states of Bahia and Rio de Janeiro the season commences after Sao Paulo, while in the south, in the Parana River district, it preceeds this season. Providing that boxing similar to that in the United States can be arranged satisfactorily, and that oranges may be shipped from Santos to New York without refrigeration, growers believe that the United States would offer excellent opportunities for the exporting of this fruit. At present, however, a quarantine now in force would prevent the entry of these oranges into the United States.

FREE TRADE GRANTED

LEMON JUICE MERCHANTS

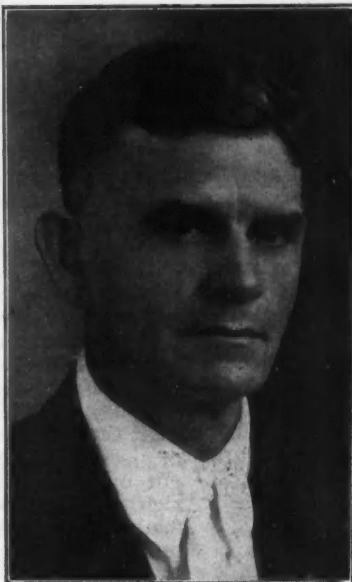
Concentrated lemon juice manufacturers of Messina, Italy, have been relieved of all obligations to sell their product through the Camera Agrumania by a royal decree promulgated last winter. Consul George L. Brandt informs the Department of Commerce that lemon juice may now be bought and sold privately upon payment of the Camera's tax. This product has for many years been controlled entirely by the Camera Agrumania.

Florida Citrus Grove Plantings

By Frank Stirling, General Inspector State Plant Board,
at Farmers' Week Meeting

Perhaps no single horticultural venture has made a more rapid stride during the past ten or twenty years than has our own citrus industry here in Florida, and perhaps it might be well to say something about conditions as they pertain to the development of this business since Florida growers have been interested in growing oranges and grapefruit for profit.

Professor Hume quotes that "some writers have referred to some of the citrus fruits as being native of Florida, and the fact that lemons, limes and oranges have become naturalized and now grow side by side with native trees in the hammocks or forests, lends color to the belief that they are indigenous. But on the other hand we know that they are of Spanish introduction, and no citrus trees were growing in the peninsula before the advent of Europeans. This is a matter of history. No species of citrus is native of America, and neither are any members of closely related genera indigenous on the American continent." And further, "The date of their introduction (sweet oranges) into America is, as it is with nearly all the early introductions of citrus, merely a matter of conjecture. The Spaniards were undoubtedly responsible for its being brought into many parts of the New World. On the authority of Acosta and Piso, who wrote concerning their travels in the West Indies and Brazil respectively, we must conclude that oranges of some sort were well established in those parts of America which they visited prior to 1600 and 1648. In Florida the early settlers found sweet orange trees growing in the hammocks in some places. That whole strain of oranges now largely grown on the Indian River had their origin in one of these wild groves. But the fact remains that the sweet orange was not so widely distributed throughout Florida as the bigarade (sour and bitter-sweet) orange; at least it was not found so abundantly in the native woods. This may be accounted for by the fact that the sweet orange, being less hardy, was not as capable of making a place for itself among the native trees as the bigarade. It is not improbable the sweet orange was introduced at a somewhat later date than the sour orange, which



Frank Stirling

might also, in a measure, account for its not being so common. But groves were established and in a thorough state of cultivation early in the nineteenth century, and even before that time considerable attention was given to citrus culture."

An outline showing the growth of this industry from the time first records were kept may be interesting, and for that purpose a chart is herewith presented which shows the growth of the citrus industry in Florida during the past one hundred years. This chart shows how our present very large acreage of over 250,000 has grown in 1924 from practically nothing, so far as we know, since 1824.

Of course, it must be borne in mind that authentic records of the development of this industry were not kept prior to twenty years ago and the information obtained in the preparation of this chart and this address is based upon extracts taken from historical records and from conversation with men who were engaged in orange growing forty or fifty years ago.

Our earliest record giving anything authentic on the planting of citrus is secured from the autobiography of Thomas Douglas, who was first Chief Justice of the Supreme Court of

Florida, and I quote from this autobiography notations made by him relative to the citrus industry during the years from 1826 to 1834.

"When I arrived at St. Augustine (in 1826) it was one continued orange grove from the gates at the north end of the city to the barracks at the south end, and from the harbor back nearly to the St. Sebastian River. The trees were said to be the largest in the world, and produced the finest fruit; the lime, lemon, citron and guano were also cultivated with great success

"Very little attention had been paid by the native population to the cultivation of the orange and other fruits; but soon after I settled at St. Augustine it began to attract the attention of strangers and some of the more enterprising citizens, and property suitable for groves was sought for and rising in value.

"In the year 1834 I purchased a small farm at Macariz, 1500 Spanish yards from the north line of the city, and a nursery of 1500 very fine young orange trees. But on the nights of the 7th and 8th of the following month of February (This was in 1835 J. C. Y.) there came a frost—"a killing frost"—which destroyed every orange, lime and lemon tree in Florida, a circumstance which could not have been foreseen, as such a thing had never before occurred, although the orange had been raised in East Florida for several hundred years, and there were trees in St. Augustine more than one hundred years old. This was a severe blow to East Florida, and especially to the "ancient city," the orange culture being one of its principal resources, and one which, with the poorer classes, could not be easily supplied."

These plantings mentioned by Judge Douglas in the vicinity of St. Augustine and on the lower St. Johns River were perhaps the first plantings of sweet oranges of any size in the state. However, there must have been a good many thousands of wild oranges growing in various hammocks of the state for a long time prior to 1924, for large trees have been known to have been growing in these wild hammocks ever since the memory of the white man runneth not to the contrary and Mr. A. S. Kells, in speaking of early

Continued on page 25

Don't Drag the Bacon Home

By Paul Orchard, Arcadia, Fla.

All reports indicate this citrus crop will bring home the bacon we all need this fall. The crop will be finished so far as production goes in the next ninety days. Some very reliable marketing men predict fancy prices in less than that length of time. So the quicker and better finish that can be given the crop, apparently the greater will be the slice of bacon brought home.

Don't let's drag the bacon home, losing by dirt, decay and injury a large portion of our slice. Don't let's drag our slice away from the other fellow. Don't let's insist on having ours simply because we are in position to get it. Let's get our slice by finishing the crop right so it will look, size and taste like excellent value even at a high price.

In fruit raising like racing or any other line of endeavor, the FINISH is more important than the start. A good start may be followed by a poor finish, though many a poor start has been turned into a good ending. This applies most forcibly to citrus fruit. The care given the crop during the next ninety days will determine the finish the fruit will have in market. The bulk of time, labor and money has been spent on this crop to make it good. The fall spraying now due is the last operation of production in the grove and if well done promptly insures profit from all that has gone before. Delay or omission of fall clean up can easily lose a large slice of profit by delaying color, holding sizes too small or letting the fruit get rusty at its last opportunity. There is no sense in losing money for any of those reasons as the spraying must be done anyhow before next bloom.

Finishing the crop in good style has never seemed so important because generally throughout Florida more sulphur sprays and dusts have been used than ever before. Because of this increased precaution and employment of sulphur it now looks as though in spite of rust mites unusual activity the crop as a whole is at this date much the most presentable we have had for years.

Forget Hocus Pocus

A lot of hocus pocus, hot air and scientific detail has been circulated one time and another in Florida about spraying. Growers very generally feel that sprays are fearfully and wonderfully made and act most mysteriously in their uses and effects.

Some of the confusion has resulted from misunderstanding of the exceptionally fine work done by state and government men and by spray manufacturers. Most of the mystery has been fostered by real or imitation experts seeking to complicate a simple job that they may profit.

We don't require an "expert" to tell us when to wash our faces or bathe our bodies. We know we must keep clean or suffer from poor skin functioning, disease infections and finally, in extreme cases, from bugs and cooties.

Cleanliness

Trees resemble animals and folks in their need for cleanliness. If not cleansed of soot and insects like scale, fly and rust mite, tree health suffers and fruit loses in quality and quantity. The foliage of a tree naturally is more insistent on cleanliness than an animal's skin. While an animal's skin is limited in function the foliage of a tree is skin, lungs and part of digestive organs.

Proper spraying is simply keeping the foliage clean and uninjured by fungi or bugs.

From the profit standpoint fall spraying is the most important of the grove year. It affects saleability of fruit, which of course, is reflected in the money return very quickly.

But the fall clean up delivers fully as great profit in tree health, leaving trees clean until bloom time. Profits from benefits to tree health are not so apparent because they appear in bloom and crop of next year. Their ultimate benefits to the pocket-book, however, are just as great as the immediate finishing of the fruit on trees.

Finishing Crop

If the fruit now held by the trees is to color when it properly should and attain marketable size at the right season it must be washed clean of sooty mold fungus. If fruit is to hang on trees till gathered and not drop disastrously, scale and whitefly must be destroyed. To loosen soot and kill whitefly and scale there is no need of experimenting. Some perfectly reliable, dependable sprays manufactured here in Florida have been standard for years, one having been on the market eighteen years. Also there are some less well known products for home mixing.

Spray Costs

All the oil sprays and spray oils for home mixing sold in Florida are worth

about what they cost. Generally speaking the higher the price the better a spray works and the more nearly fool proof it is. First cost of spray material is not the only cost. A spray formula priced a little higher per gallon may be cheaper than a lower priced article because it may be used at greater dilution. Or it may spread and cover better in the field. Finally the better article may give more perfect pest control or may totally eliminate fruit injury sometimes occasioned by sprays not carefully adapted to their purpose.

The best proprietary sprays keep indefinitely, clean trees properly and mix well with sulphur and Bordeaux. Usually, too, these may be used with all waters. The cruder products, especially home mixtures, are reasonably effective but call for more careful handling and extra labor that about equalizes in trouble and time their lower initial cost. Careful cost accounting by a great many growers indicates that home made sprays have all the advantages claimed for them but that the best manufactured sprays are not only easier to handle but cheaper in the long run when labor, spoiled material, spread and effectiveness are carefully appraised.

Keeping Fruit Bright

If the fruit now on the trees is to be bright and pretty it must be kept free from rust mite which might, even as late as November, if weather allowed, turn crop rusty.

For rust mite, sulphur in various forms has proven efficient. It may be dusted on or sprayed separately as lime sulphur solution. More economical practice is to mix sulphur in some form with the fall oil emulsion spray and thus save the labor of one spraying or dusting. Most economical of all along this line, an old established concern has just announced an oil sulphur mixture which under careful test has thus far proved as effective as two separate sprays at different times. This latter spray is especially economical in first cost and easy to handle; apparently it will be the most popular fall spray.

Holding Fruit

Where fruit is to be held late, frequently a large amount of dropping is occasioned by anthracnose and withertip. Where this has occurred in previous seasons prevention of loss is decidedly advisable. To control these two fungus diseases and lessen consequent decay of fruit in

transit to market is reasonably easy and economical.

Bordol Mulsion, a proprietary article has proven its worth in accomplishing this together with a fall clean-up of scale, fly and sooty mold. Likewise various Bordeaux oils, both home made and proprietary, though not generally recommended for fall use, have given excellent results. Killing insects, flaking soot and control of anthracnose and withertip all at one spraying requires a more careful compounding of spray than is needful when fewer objects are to be attained. Where Bordeaux oil has proved disappointing for all these purposes the failure seemed to be that proportioning of ingredients was not proper. Therefore the proprietary article has proven more satisfactory as tested for the purpose.

The Sooner the Quicker!

Early fall spraying is most advisable for its effect on fruit. The earlier the fruit is freed from soot and scale the earlier will it attain correct color and good size. Likewise the earlier the sulphur part of the fall cleaning up is done the greater is the certainty of freedom from rusted fruit.

So great is the influence on size, quality and color of fruit, that spraying even before the last of the last brood of whiteflies have settled is often advisable. An early spray, in September or October, kills so many more scales and protects fruit so much that its failure to kill the whiteflies then on the wing, is more than offset. Anyhow where Bordeaux-oil or Burdol Mulsion are to be used in the spring to control Melanose and scab, the whiteflies which escape the fall cleanup are usually eliminated before they have opportunity to multiply or do any great injury.

Aphis Precaution

With a possibility of aphis infestation next spring also menacing us, the fall spraying assumes even greater importance than normally. It is well known that a good oil emulsion kills every aphid hit. A cleanup now will decimate the aphis and decrease its chance of doing damage. Because of the prolific nature of the aphis the fall oil spray does not guarantee against that pest as against scale and fly, but it does vastly improve a grove's chances of escape. We may reasonably hope the coming winter will not favor spread of aphis. In that case thorough oil emulsion spraying now may give entire freedom for some months or possibly even prove a death blow to the aphis.

If every grove in Florida were sprayed properly with an oil-sulphur

THE CITRUS INDUSTRY

mixture this fall another year would see the best start for a crop Florida has ever had. However there will be no such luck and every grower must do his uttermost to improve conditions within his own acreage.

Three Policies

Grove management follows one of three lines: the man who looks backward, the man living in the immediate moment and the look ahead.

Men who look backward esteem fall spraying as the first chance to overcome damage already done by insects and fungi. As such men judge by experience they properly gauge the injury.

The grower who lives entirely in the present, conducting his property each season for that season alone, values early fall spraying for the chance to mature his crop of fruit now on the tree. He knows the sooner his fruit is cleaned of soot, scale and fly and cleared of rust, just so much longer will be the period in which it may make a natural, healthy growth. That natural, healthy growth means good sized fruit, colored when it ought to color, therefore saleable and attractive at its normal time. To such men the future benefits of spraying are purely incidental though usually appreciated.

There is the type of grower who plans ahead for next year and other future crops. He runs his grove on the principle that in laying a sound foundation for future crops the current crop will be amply cared for. For these men, early fall spraying is the first chance to clean up trees so they may utilize fall sunshine to get in shape for the coming crop. Their foliage must be clean to elaborate fully the plant food accumulated during the summer and store it as starches and gums that will produce the bloom of the following spring. Likewise, he wants to free his trees of the drain on their vitality by insects. Therefore this man sprays as early as he believes he can accomplish profitable cleansing and does not seek to attain maximum effectiveness—rather aims at prompt relief of existing conditions.

Anyway you look at it, early fall spraying is as important as a man washing up after his day's work—because he will stay clean over night and feel better to start the following day. Trees should be cleaned of the summer accumulation of troubles likewise so they can have the winter free of serious drain and may begin the following crop with no handicap at the start.

Supplies and Equipment

Human nature procrastinates. We

all more or less exaggerate our own importance—think we can get by even if the other fellow doesn't.

This trait shows up in spraying. Growers let their spray machines set under shed until they want them to work. The tank is filled and a start made. Then the operator cusses because nozzles clog, hose bursts or engine and pump refuse to run smoothly. It simply can't be done. The rig can not overhaul itself. Good management calls for careful inspection and overhaul several weeks before the machine will be needed. This allows time for any repairs to be made. If new parts must be ordered from a distance they may come to hand without delay at a rush critical time. Likewise when not rushed we are apt to make better repairs than when we have labor idle and are in a hurry to get spraying done. Hose, nozzles, etc., don't last forever and ought to be ordered before spraying begins.

Starting spraying without overhauling rig and accessories is one of the commonest and costliest mistakes growers in general make. Put the rig in good order in July or August. Then when you start spraying you may spray—not tinker with the machine.

Spray Service

Spray manufacturers of Florida have achieved marvelous service with their factories at many points, deliveries by truck and from warehouses. In spite of their best efforts, a certain per cent of growers are disappointed every spraying or dusting season by late arrival of supplies. This is due to continuous increases in amount of sprays and dusts used. Increase in factory and warehouse capacity each season is enormous but cannot keep pace with peak of demand. Perfect service could only be rendered by spray manufacturers owning transportation systems and unlimited factory capacity. But so long as they, like the rest of us, must depend on making a living, they can not indefinitely increase factory capacities nor multiply motor trucks. Their facilities in general are adequate if the public would help a little by ordering spray materials before they are urgently needed. Most sprays and dusts of reputable brands can be kept at the grove a reasonable length of time without deterioration. The best known brands can be kept indefinitely without loss.

Therefore order your spray material three weeks before you will need it. Order accessories like hose, etc., as far ahead of your requirements as you can. You will be amply repaid

in better service and peace of mind when you know a slight delay in factory or railroad will not upset your spray schedule, nor allow pests to injure trees during a delay later.

First, last and all the time remembering spraying is a common sense operation. The more horse sense applied to it the greater will be the profit derived. Don't be befuddled by too much detail nor depend on some mysterious expert to lead along. Grove spraying is like personal washing—to be done when needed. If scale gets bad, kill them with an oil emulsion. If whitefly is thick, spray them with oil when they quit flying. If rust mites are numerous, apply a sulphur spray or dust at once.

If melanose, scab or "amoniated" fruit troubles you, just remember to protect next crop by copper sprays before and after the bloom.

That's practically the whole spraying story in a nutshell. Simple— isn't it?

SATSUMA A COASTAL CROP?

Columbia State: Dr. C. C. Newman, chief of the horticultural division of Clemson College, is quoted as believing the satsuma orange will thrive in the South Carolina coastal plain as far north as Georgetown and the development department of the Seaboard Air Line is promoting conservative commercial plantings in the southernmost counties, where J. N. McBride, general agricultural agent of the railway, is confident, with Prof. Newman, that an important satsuma industry can be built up.

Here and there in the low country of South Carolina, as well as in South Georgia and Florida, satsumas have been grown as a home orchard fruit for forty years, having been introduced from Japan in 1876, but commercial plantings were first made only about twenty-five years ago, in Southern Alabama. The largest groves at present are in Baldwin and Mobile counties in Alabama and in six counties of Northern and Western Florida, with promising new plantations in four counties in Southeast Georgia. "It has been observed that, in general, the further north the satsuma is grown, the better the quality of the fruit," says a handsome information booklet issued this week by the Seaboard Air Line development service.

Early maturing Owari satsumas are of deep orange color, with a thin, smooth skin which strips away freely, the pulp then parting readily into sections, as with the tangerine. The fruit is large, flat, depressed at

both ends and is practically seedless. The flavor is sweet and distinctive, the juice abundant. The tree is a thornless evergreen of dwarf habit, seldom higher than ten feet. When the Owari is budded on citrus trifoliata root stock, its natural hardiness is greatly increased.

Coming into the market ahead of the round orange, the satsuma is always in demand. "The first car shipped from West Florida to Chicago in the fall of 1923 sold for \$2,600. Considering the limited area in which satsumas can be grown, there is no probability of over-production, provided care is given to producing quality fruit and business principles are applied to marketing."

BIG CITRUS DEVELOPMENT IN RIO GRANDE VALLEY

George B. Terrell, Commissioner of Agriculture, has had his inspectors make a survey of citrus nursery stock in the Lower Rio Grande Valley, including the number of trees shipped into the valley since Sept. 1, 1923. This report shows the wonderful development of this industry in the valley.

Mr. Terrell's statement follows:

"A recent survey of citrus stock in the Lower Rio Grande Valley made by our inspectors shows that there have been shipped into the valley during the fiscal year now closing 102,277 citrus trees, and that the valley nurseries have furnished 338,224 trees for planting this year, making a total of 430,501 trees planted this year. Nearly all these trees are oranges and grape fruit.

"There were already planted out in the valley about 2,000,000 citrus trees, and the plantings this year make a total of about 2,500,000 citrus trees in the valley. In addition to this there have been 3,230,500 sour orange seedlings planted in nursery beds for future planting. This clearly shows the rapid development of the citrus development in this section.

"This survey was made by our regular citrus inspectors primarily for the purpose of detecting and combating citrus canker and other diseases, and not especially for determining the number of trees."

In a few years the government will most likely be employing county agents to help the politicians with their problems.

In writing to advertisers, please mention The Citrus Industry.

For Alfalfa and Clover

—Use Agricultural Gypsum to get largest yields. Write today for free book, "How and Why of Agricultural Gypsum."

THE GYPSUM INDUSTRIES
Dept. 56 844 Rush St. Chicago, Ill.

**gas 'em
ants!**
gophers! turtles!
rats! salamanders!
land crabs!
grubs! nematodes!
chinch bugs! moles!

Calcium Cyanide releases hydrocyanic acid gas — economical and effective in control of these pests.

Information on request—

AMERICAN CYANAMID CO.
301 State Bank Building, Orlando, Fla.
Main Office: 511 Fifth Ave., New York.

Calcium Cyanide
"A" Dust

If You Want a

SUPERIOR GROVE

Plant

Superior

Nurseries

Trees

M. J. Daetwyler's

SUPERIOR NURSERIES

Orlando, Fla.

Avocados In Florida

By L. D. Niles

The Avocado is undoubtedly the most promising fruit among those bidding for popular favor at the present time. It has overcome much skepticism and now appears in varieties which can be grown throughout most of the citrus section of this state. That this really wonderful fruit has been so little known in the large markets has been due largely to the limited areas in which it has been grown and the slight knowledge of the consuming public as to its valuable food properties. Analysis shows that it stands very high in relative nutritive value of foods.

Apparently the earliest reference to the avocado is found in Oviedo's report to Charles 5th of Spain in the year 1526, stating that the trees were found on the mainland, but does not mention their occurrence on the islands and judging from the writings of early historians the native home of the avocado must have been Central America from Mexico to Peru. Since the time of Columbus the avocado has spread from its home in America entirely around the tropics.

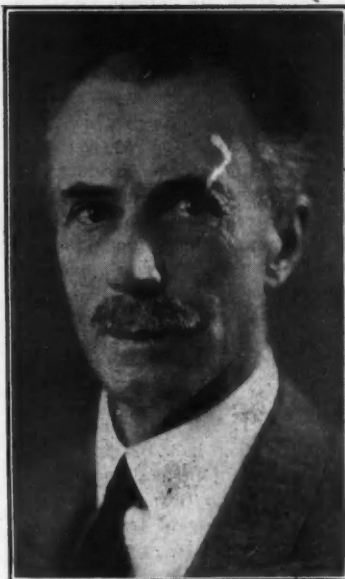
The tree is usually described as evergreen although in some instances the leaves are shed just before flowering; however, in addition to its vegetable growth is slightly larger in able ornamental and shade tree, frequently of large size.

Soil

The avocado tree is quite adaptable as to soil requirements providing the drainage is good, and water level not too near the surface. Perhaps the vegetable growth is slightly larger in the heavier low lands but water must be under control; however it would be well to select protected places with good air drainage in case of cold. Provided the tree is banked, if budded, it will recuperate quickly even when injured severely, growing a new top and fruiting before citrus will under similar condition.

Varieties

So far the West Indian and Guatemalan types have proved best commercially, however some few Mexicans are showing promise but as a general rule their fruit is quite small and ripens during the period when West Indian seedlings are in market. The Mexican type tree is undoubtedly the most hardy known and is fruiting successfully well towards the northern part of the State.



L. D. Niles

Possibly our best commercial fruit of the future will be a hybrid of local development, especially adapted to our soil and climatic conditions. One of the best suggestions for present planting is to secure strong vigorous trees of the variety desired, knowing that they can be readily top-worked should a better variety appear. For northern markets fruit maturing during the winter season will sell for highest prices, therefore this point should be taken into consideration when choosing varieties for grove planting.

Home plantings should contain trees of all three types thereby extending the ripening period over several months, in fact up to eight months if desired.

Planting and Cultivation

Very careful attention should be given to preparation for and planting of avocados as everything depends on getting the trees well established. The ground should be well prepared, preferably growing a leguminous cover crop the preceding season, which should be turned under, large holes with a small amount of compost and bone meal, well mixed in bottom and around sides and either prepared far enough in advance of planting or kept away from the plant so there will be no danger to the young tender roots.

In planting follow nursery directions, do not disturb roots and be generous with water. Half shade until well established, say through first summer.

Water for the first year is most important, do not keep ground water soaked but they must have plenty in anticipation of their wants. Perhaps the better way is to prepare a cup around the newly set tree which will hold a pail of water, then a little mulch to save drying out will make it easy and rapid when necessary to water again. Would suggest working the tree rows first few years same as citrus, but growing all the cover crops possible in the middles, working this all back into the soil at proper periods.

Insects and Diseases

Fortunately many of the worst pests of the avocado in its native countries were not imported with it; however many of our native pests are adapting themselves to this tree, so the orchardist has enough to watch to keep him out of mischief.

The most important perhaps being the pyriform (*dictyospermum*) scale. The most effective control being an oil emulsion applied preferably when the trees are dormant: generally two applications with a three week interval control this scale.

Avocado growers are favored by having an efficient State Plant Board to whom report should be made of any insect or pest not thoroughly understood or which does not acquiesce with the control methods used. Farmers Bulletin No. 1261 "The Avocado"

CITRUS TREES

Our trees have not been infested with Aphis.

Every tree has a fine quality root stock and a careful bud selection.

These features are the fundamentals of a good grove and successful citrus culture.

—Write or call—

**Wartmann Nursery
Company**

OCALA,

FLORIDA

THE CITRUS INDUSTRY

Twenty-one

cado" by Moznott, United States Department of Agriculture, Washington, D. C. contains valuable information, also a bulletin "Avocado Diseases" by Stevens, published University of Florida at Gainesville.

Fertilizing

Careful observation shows that the avocado needs plenty of fertilizer, preferably of an organic source, rather slowly acting and non-leaching. Frequent applications for the young growing trees and later when in bearing the fertilizing is more of an individual problem to suit the wants of each tree, as determined by the amount of fruit borne and general condition of the tree.

Harvesting and Marketing

From the fact that the fruit is quite easily injured in handling, and that it will soon ripen and soften after picking; makes it rather a difficult problem in shipping.

The fruit should mature but still be firm and hard before picking, for shipment to distant markets it should be moved at once, either packed in well ventilated crates with excelsior, thus avoiding danger of bruising; or else packed in some of the form of crates which can be iced enroute, which by the way are giving excellent results in long shipments.

Continued in October Number

CITRUS FRUIT ARRIVING ON THE MARKET

Continued from page 13

little unoccupied space as it is humanly possible to fill up. Then when the bump comes there is very much less chance for a jam that will do damage to part or all of the fruit in the car. I do not consider that it takes an expert to load a car in this manner, as it is a matter of simply keeping the height you start with and using up all the available space from the bottom to the top of the load.

Sometimes it is necessary to ice cars, as we all know, but when that time comes, an up-to-date commission man will quickly advise us about that. He is not going to put the growers to that expense unless he thinks it necessary; therefore, advise with him about this or have him let you know.

I have always been rather charitable towards the railroads in their part, believing that they want to render to the public just as good service as is possible to do. They have their difficulties as well as we, and I am sure that we criticize them many times when we should not.

Their source of income are the patrons of their transportation lines, and of course they would not want "to kill the goose that laid the golden egg."

In Conclusion

Vigilance, harmony and good fellowship all along the way from the grove to the consumer's destination would no doubt be good watchwords for us all to have. We would then be much happier and in the end much better off, remembering that we are gaining ground all the time in the shipping of citrus fruits to the best advantage from the State of Florida, one of the best states in the Union today, and even headed toward greater things than she even now dreams.

Yours for a still greater Florida and a higher standard in growing and profitably marketing of our citrus fruits that are second to none in quality and that shall be second to none in appearance.

An objection to purebred chickens is that when you want to catch a certain one to eat they all look alike.

In writing to advertisers, please mention The Citrus Industry.

ANNOUNCEMENT

There have been various rumors circulated that the firm of S. J. Sligh & Company is to discontinue business. As Mark Twain said, when told of the statement published that he had died, these rumors are grossly exaggerated and are without the slightest foundation in fact.

We are still doing business at the old stand and will take an active part in marketing Florida citrus fruits this coming season. We shall be pleased to consult or correspond with reliable growers.

S. J. SLIGH & CO.

Orlando — Florida

For Your Comfort

HOTEL TA-MIAMI

MIAMI, FLORIDA

NOTE:

The success of this hotel has been achieved by its appointments and its strict adherence to the principal. "The welfare of the guest is the first consideration."

BETTER FRUIT in BETTER BOXES

Orange Boxes Exclusively

Annual Capacity Two Million

None Better—Few as Good

ROUX CRATE COMPANY

General Offices—Tampa — Mill-Lake Garfield

Success of Citrus Season up to the Growers and Shippers, Asserts F. L. Skelly

It is up to Florida growers and shippers now, as to what next season will hold in the way of profits on the citrus crop. This is the opinion of Frank L. Skelly, manager of the American Fruit Growers, Inc., who has just returned to Florida after a round of the important northern markets.

"The optimism with which I am credited concerning the next citrus season," said Mr. Skelly, "is but a reflection of the optimism of the fruit trade, of our sales representatives, and of our regional sales directors, each of whom is in very intimate touch with his own particular section of the United States or Canada. The reasons for this optimism are well founded. They are to be found in the figures available from California and the estimates concerning apples and the various other crops which exert an influence upon our markets for citrus fruits, and which have already been given. These constitute an abundant reason for optimism here in Florida.

"They also put it squarely up to us here in Florida as to what we shall do with this opportunity. Personally I am very hopeful of the situation. It is going to be necessary of course, to prevent breaking the early markets with fruit which is lacking in maturity. The outlook for restraint in this direction seems to me to be better than for a long time. There have always been promises of good behavior in this respect, but if last season's lesson has been learned, we are now due for performances as well. As concerns ourselves, we will

have no change in policy. We think too much of our Blue Goose trade mark to allow it to be used on any fruit which will not fully pass the prescribed acid tests. We are willing to state flatly that it will not be misused in this respect.

A Voluntary Matter

"As things stand, due to the absence of adequate laws, the observance of the acid tests is now largely a voluntary matter to be obeyed or disregarded by each shipper big or little. However, the outlook is, as I have said, better for observance of the tests than it has been for some time.

"Then we must distribute our shipments along in a reasonable manner. If this is done, and we avoid over-supplying the markets it would seem as if a good market is assured to us up to Christmas. If we can maintain a good market that long, the outlook for the balance of the season may be said to be extremely encouraging.

"It is to be hoped that as large a volume of sales as possible next season will be made upon an f. o. b. basis so that dealers in the various sections are assured supplies of fresh fruit. This is extremely important. Simply to rush forward volumes of fruit to diversion points with no idea of how that fruit may be disposed of must always be suicidal. It can only result in supplying dealers in large part with fruit which has been too long in transit and is far from fresh, and in dumping upon the auction markets fruit in similar condition, a

large part of which is not calculated by its character to meet the needs of those markets. What we want is direct sales upon an f. o. b. basis in the largest possible volume, and the sending to the auction markets only of fruit which is billed direct to them because it is of a character those markets desire. In that way, and in that way alone, can we hope to obtain the full value of the Florida crop.

Confidence in Both

"In my observation, business throughout the areas in which we sell is on a very healthy basis and rather better than might be expected during a presidential year. The country at large seems to have confidence in both Davis and Coolidge. The feeling holds in business circles that the election of either would be satisfactory, and that prosperous business may be expected. This, in itself, is a healthy sign.

"Our latest word from California is that the Valencias there probably will be fairly well out of the way by Oct. 1st. This ought to help us much in making a good market for our early oranges. If we start out right and continue with reasonable judgment and restraint we ought to be off to a very profitable season. Fruit which is well graded, properly packed and advertised is going to do very well indeed, unless something occurs to shake the confidence of the markets. That can only occur here in Florida, which is why I am inclined to say the situation is right up to our growers and shippers here in the state."

Florida May Be Blackballed by Green Fruit Shipments

"The shipment of green oranges and grapefruit during the early part of the season is an extremely dangerous practice, for it hurts successful sales of Florida fruit during the balance of the year," declared L. C. Edwards, president of the Florida Citrus Exchange.

"Green fruit, or artificially colored, immature fruit," said Mr. Edwards, "does more to kill the consumer demand than any other single factor. The purchaser of fruit in this condition, responding to the sales arguments in favor of Florida oranges and

grapefruit, is erroneously impressed with the true quality of Florida fruit. He not only refuses to purchase more but becomes a walking advertisement crying out its poor quality.

"The impression the consuming public gains in this manner is so strong that it can not be corrected in a short time by advertising, sales or publicity effort. The consumer is literally driven away from Florida fruit.

"The trade North does not want immature, artificially colored or green fruit. But due to the deception practiced by some Florida growers and

shippers it is seldom able to detect such shipments except by a kick-back from the consumer. As a result favorable interest of the jobber and dealer is often lost. They refuse to push, and in many cases dislike to handle, Florida fruit until it is proven to them that the fruit is properly ripened. This naturally increases the sales expense of the fruit grower.

"Any man who has the state of Florida at heart," further stated Mr. Edwards, "will frown upon the shipment of green fruit. He knows that it is not only giving the direct lie

to the quality of Florida grapefruit and oranges but tends to kill what consumer demand there is.

"Shipping green fruit for the sake of a few high dollars at the beginning of the season is as great a fallacy as 'killing the goose that laid the golden egg.'"

"The Florida Citrus Exchange is doing all in its power to discourage green fruit shipments this season. It is in touch with the proper authorities who will provide for the inspection of all fruit under officials who will see that fruit which passes the acid test only will be shipped," concluded Mr. Edwards.

SAYS TEXAS WILL

RIVAL CALIFORNIA

According to a report just made by George B. Terrell, state commissioner of agriculture, Texas is in a fair way to rival California in the production of citrus fruits. In a few more years several million oranges and grapefruit trees in the Lower Rio Grande, Valley and other parts of South Texas, will be in full bearing. Already the industry is on a commercial basis, the annual shipments showing a big increase each year. The survey made under the direction of Mr. Terrell shows that a total of 430,501 citrus fruit trees were planted this year in the Lower Rio Grande Valley. Of this nursery stock, 102,277 trees were obtained in California and Florida, and the remainder came from home nurseries.

"There were already planted out in the valley about 2,000,000 trees," he said. "In addition there have been 3,230,500 sour orange seedlings planted in nursery beds for future planting."

"This survey was made by our regular citrus inspectors primarily for the purpose of detecting and combating citrus canker and other diseases, and not especially for determining the number of trees."

ITALIAN LEMON SHIPMENTS

Shipments of lemons from Messina to the United States amounted to 3,035 boxes during the month of February, 469 boxes of which were sent on consignment, according to Consul George L. Brandt, in a report to the Department of Commerce. On February 29, local exporters were paying the following prices per box of about 300 lemons, as received from the growers: Messina lemons: 1st quality, 65 cents to 73 cents; 2nd

THE CITRUS INDUSTRY

quality, 65 cents to 70 cents. Costa onia-Pettineo lemons: 1st quality, di Tramontani lemons: 1st quality, \$1.03 to \$1.08; 2nd quality, 56 cents to 60 cents; 2nd quality, 65 cents. Car-

Twenty-three

T. W. RAMSEY

LUMBER

HOUSE AND BUILDERS SUPPLIES

WINDOWS AND DOORS

We ship large or small orders

17th St. and 6th Ave. TAMPA, FLORIDA Phone 51-219

HOTEL HILLSBORO

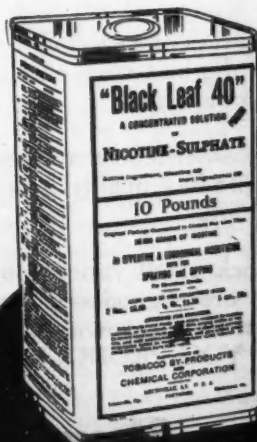
Tampa, Fla.

TOP O' THE TOWN

European Plan, Fireproof 300 Rooms With Baths

THE CENTER OF TAMPA

Should be
used with
Every Spray



Aphis
Insurance
In Your
Citrus Grove

Serious Aphis infestations have broken out in some sections.

Protect your fruit and rid your trees of Aphis and similar destructive insects at a cost of only a few cents a tree. "Black Leaf 40," the "Old Reliable" nicotine spray, is recommended by Agricultural Colleges and Experiment Stations. Spray singly or in combination with solutions for scale and other grove pests.

Adequate stocks have been placed with "Black Leaf 40" Dealers in all citrus sections.

Tobacco By-Products and
Chemical Corporation
Incorporated
Louisville, Kentucky

Kills
Aphis

"Black Leaf 40"
40% Nicotine

SOME FIELD OBSERVATIONS ON THE NEW APHIS

Continued from page 9

sery stock who have their places of business outside of the state, but self preservation is the rule in any industry, and we should protect ourselves.

The damage caused by the citrus aphis to the growers of Florida may be conservatively estimated at not less than four million dollars for this year alone. In making a statement of this kind one man's guess may be considered as good as another's; but if we consider the number of boxes of oranges and tangerines actually dropped off the trees on account of the attack of this pest, the injury to the trees, the possible effect on next year's crop, and the enormous amount of money spent for materials, labor, and extra equipment used in an attempt to control the insect, it will be found that this estimate of the damage is not overdrawn. Can we afford then to allow present conditions to exist? Should we not bar importations of plants from outside, or at least require them to be fumigated? The speaker cannot help feeling that prevention is better than cure. If, a few years ago, we had

THE CITRUS INDUSTRY

spent a small portion of the millions lost on account of citrus canker, aphid, and a few other pests that have taken their toll during recent years, and expended this sum in throwing up proper safeguards, we would now be in a much better situation. We can rest assured that we have not had the last introduction of a serious pest. There are many more to come; and it will only be a question of time when they too will find their way in to add to the expense and trouble of the grower, unless further precautions are taken to keep them out.

ANALYSIS OF CITRUS NURSERY SITUATION

Continued from page 12

The direction in which I would like to see the nursery business develop is as follows:

1st. Less quantity—more quality trees. Remember that you plant a tree for a life time.

2nd. Agreement to propagate only a few standard varieties. Multiplicity of varieties is confusing to both fruit dealer and customer.

3rd. Improved methods in budwood selection.

4th. Improved methods in culling seedlings, and budded stock, using

only the best.

5th. Propagating only proven varieties on proven stock.

6th. Greater care in adapting stock to soil on which it is to be planted.

7th. Greater care from the seedling on to planting size to keep all parts free from insects and diseases.

"COULD BETTER FERTILIZER BE MADE—WE WOULD MAKE IT."

Standard of QUALITY for the past forty years with Florida Growers. Prices right—quality considered. Not the cheapest—but the BEST for results. Also get price list INSECTICIDES, SPRAYERS, DUSTERS and DUSTS.

E. O. PAINTER FERTILIZER CO.
JACKSONVILLE, FLA.

FOR SALE

When in Porto Rico a few weeks ago Mr. Roux secured for his own use a large quantity of choice avocado pear seed which will arrive in Tampa, Monday the 15th on steamer Delfina. The seed are well packed in barrels containing about 800 seed per barrel. We now find we will not require the entire shipment and offer for quick sale from one to ten barrels at \$25.00 per barrel, in lots of over ten barrels \$22.50 per barrel f.o.b. Port Tampa.

If interested phone or wire

Harry L. Askew
Phone 2853 Tampa, Florida

Future Citrus Profits Depend Upon Your Trees

Good trees are the foundation of a profitable citrus grove. It is a paying proposition to plant the best trees obtainable, to choose them as carefully as you would your friends.

Even if you follow every other requirement necessary and use all precaution, a grove cannot produce quality fruit unless the nursery stock has been selected with care.

We have a complete stock of all varieties on both sour orange and rough lemon root. They are as good as it is possible to produce them, budded from pedigreed trees of known quality and quantity production. WE CAN HELP YOU PRODUCE BETTER FRUIT.

Ocklawaha Nurseries, Inc.

LAKE JEM, FLA.

THE CITRUS INDUSTRY

Twenty-five



GLEN ARDEN PLUMS

The tree shown above is growing on the grounds of the C. E. Pleas Plant Company at Chipley, Florida. The first crop from this four year old tree was over one bushel, and six of the plums weighed one pound. Mr. Pleas says: "This tree came to us under the name of Green Gage but it is a Red Plum and twice as large as Green Gage. It is the most delicious plum we have ever seen, north or south. It is truly a kid glove plum and were it not for the fact that there is already a Satsuma plum we would certainly name it that as a fit companion for the Satsuma orange." The white streak in the picture is a three foot measure placed in the tree to give some idea of its size.

FLORIDA CITRUS

GROVE PLANTINGS

Continued from page 16

days at Citra, states that he was shown a beautiful tract of wild orange groves consisting of one thousand acres, presumably planted by Indians or Spaniards.

From meager information available we may assume that beginning one hundred years ago there was in the neighborhood of ten or fifteen thousand acres planted out in the northeastern portion of Florida, near St. Augustine, Jacksonville and the lower reaches of the St. Johns River.

It seems that orange planting had become a commercial business first

from 1830 to 1834, when, on February 7, 1835, a severe freeze, one of the hardest ever known in Florida, occurred, at which time the temperature went as low as 8 degrees Fahrenheit at Jacksonville, the lowest ever recorded there, and all the citrus trees in Florida were killed to the ground.

The chart shows a dropping off of perhaps from ten or fifteen thousand acres in Florida during that time to practically nothing as a result of this freeze, where it remained until 1850, when a slight increase occurred as the result of many of the old stumps sending out new sprouts. However, it really was in 1870 when the real interest in citrus began to be manifested. Plantings began to be made with considerable interest and during the following fifteen years, namely, '70 to '85, some twenty or twenty-five thousand acres were planted out. We are informed by some of the few old settlers who now remain that a great deal of interest was centered on budding sour orange sprouts along the Ocklawaha River and that it reached the maximum in this working over of wild groves in 1874. In fact, it was the result of this early budding that gave evidence to the value of sour orange as a root stock.

About this same time interest being shown in the possibilities of grapefruit an added impetus was given the citrus growing; incidentally, Mr. Harris of Yalaha has generally been accredited with introducing grapefruit in the northern market.

In 1885, according to information obtained from some of our older residents, and particularly Mr. H. B. Stevens, who was growing oranges in Marion County fifty years ago, there were some 40,000 acres planted to citrus trees in Florida and from that time up until 1894 an additional 60,000 or 70,000 acres was planted, so that as far as can be determined from information gathered, there was at the time of the big freeze in '94 a total of 112,000 acres. This was reduced, as a result of our last big freeze (1894-95), to such an extent that more than one-half of all the citrus plantings in the state were entirely killed. In fact, citrus growing on a commercial basis in the Counties of Putnam, Alachua and other counties north of Marion, was discontinued and the industry moved farther south. There was approximately 15,000 acres which were reclaimed after the big freeze by budding the roots over and from that time up until 1900 the business made no strides whatever. In fact, the acreage decreased every year as a

result of the frozen down groves being abandoned and ultimately dying out. From 1900 until 1910 renewed interest occurred, which brought the total up to almost what it was during the year of the big freeze and at the same time many groves were being planted in the southern part of the state. Mr. H. E. Heitman of Fort Myers was one of the men instrumental in establishing citrus growing in Lee County, for in 1900 he planted out a six hundred acre grove which at that time was considered one of the largest groves in the state. Another pioneer who created interest in citrus growing at this time (1900) on the East Coast, was Dan T. McCarty of Fort Pierce. However, it really was not until the period between 1910 and 1919 that the greatest interest begun, for by this time Central Florida was becoming the center of the citrus district of Florida. A careful inspection was undertaken by the State Plant Board, in which all groves were actually counted showing a total of 163,000 acres planted out in grove formation. This continued interest in the citrus business is shown by the chart in the elevation of the line from 1919 to 1924, at which time a second census of all citrus in Florida was taken by the Plant Board, showing a total of 253,000 acres planted out.

Of course, the bulk of the citrus industry of our state is within a radius of 150 miles, having Winter Haven or Lakeland as the center of that area. It is true that there is a lime industry on the Florida Keys of something like 8,300 acres. There have also been considerable plantings of Satsumas made within the past two or three years in West Florida. Considerable developments are being carried on in certain drained portions of the Everglades and Lee County, to the southwest of the state, has considerable acreage.

Just what will be the end to citrus plantings in this state, no one can of course say. Perhaps no more than one-fifth of available citrus land has been planted.

in writing to advertisers, please mention *The Citrus Industry*.

BABY CHICKS

AT BARGAIN PRICES

—POSTPAID TO YOUR DOOR—

100% LIVE DELIVERY GUARANTEED
Barred and White Rocks, R. I. Reds,
\$14.00 per 100.

White and Brown Leghorns, \$10.00 per
100. Assorted, all varieties mixed, \$10.00
per 100.

As many as you want from 100 up at
these prices. Orders filled quickly.
KENTUCKY HATCHERY, 246 W. 4th St.
LEXINGTON, KY.

The Control of Citrus Insects and Diseases

By R. H. F. Dade, Peninsular Chemical Company

One of the most important factors in the production of better fruit is the control of insects and diseases. Regardless of high-priced fertilizers and cultural methods, the various pests, such as rust mite, scab, melanose and scales, will lower the grade of fruit unless properly controlled.

The commercial success of such control depends upon the correct method of application of the right material at the proper time.

The correct method of application means not only the use of the best mechanical equipment but, most of all, thoroughness of application. In spraying, every leaf and twig must be wet thoroughly, as only those scales and white flies which are hit will be killed and only those surfaces coated by a film of fungicide will be free from disease infection. It is equally important in dusting for rust mite to see that each tree is enveloped in a cloud of dust so that the fine particles will eventually settle on every leaf and fruit.

For white flies, scales, and removing sooty mold use an oil emulsion at a dilution of about one to sixty-five in the summer and one to fifty during the late fall and winter. Bordeaux Mixture (3-3-50 strength) is the only fungicide which has effectually controlled melanose and scab. Lime sulphur solution will some times check mild cases of scab, but cannot be relied upon. Practically any form of sulphur will control rust mite and red spiders. Owing to its many advantages over the liquid, however, the application of dusting sulphur has become general over the state during the past few years for controlling these pests. Under ordinary conditions, dusting is eight to ten times faster than spraying, thus effecting a great saving in labor and affording a means of covering a large acreage in a short time. The latter is very important as rust mites increase rapidly and often cause damage before the entire grove can be sprayed. Dusting has the added advantage of making it unnecessary to spray for rust mite during the hot summer months when there is always danger of burning with a liquid spray.

The finest-ground grade of sulphur

is the most economical as it covers more surface per pound. A small percentage of spreader added to the sulphur makes the dust flow through the machine freely and gives a more even distribution. Practically all of the poor results from dusting may be attributed to the low grade, cheap sulphurs which have flooded the market since dusting became general.

Spray and Dust Schedule for Citrus

The first spraying of the year is for scab on grapefruit. This application should be 3-3-50 Bordeaux Mixture with an oil emulsion added, one to fifty or sixty-five, and should be made just before any new growth appears.

The next application is also for scab on grapefruit and should be made with the same strength Bordeaux Mixture with an oil emulsion added, 1 to 100, just after the petals have fallen.

During the month of April, watch for rust mites, especially on grapefruit, and if found present dust with sulphur dust.

If melanose was present the past season, spray during the last two weeks in April or before the 10th of May. Use 3-3-50 Bordeaux Mixture, adding an oil emulsion, 1 to 65.

All trees on which Bordeaux was used should be sprayed over some time in June with an oil emulsion, 1 to 65, adding soluble sulphur, 3 pounds to 100 gallons. If no Bordeaux Mixture has been used, make this application in May, unless scales and white flies were thoroughly cleaned up in the fall.

After the above applications, watch for rust mites, and if found abundant, dust with sulphur dust. In ordinary seasons, a dusting should be made in June and another in July or August. The development of the rust mite, however, depends upon weather conditions.

Between the middle of September and the last of January, a thorough application of an oil emulsion should be made at 1 to 50 strength. This will rid the trees of white flies, scales and smut. If fruit is still on the trees, add soluble sulphur, 3 pounds to 100 gallons in this application.

Always be on the lookout for rust

mites during December and January, particularly on Valencias and grapefruit. If found present, dust with sulphur dust.

The above schedule is, of course, general and covers more or less extreme conditions. If followed, however, and the work is thoroughly done, the grower may be practically assured of a commercially clean crop of fruit and healthy trees, so far as insects and diseases are concerned.

FLORIDA GETS CALIFORNIA

BEEBLE TO EAT MEALY BUG

Appeal is being made to Florida citrus growers by the state experiment station to send any mealy bugs found in their groves. These are to be used to feed a pest of the mealy bug. This pest is a lady beetle recently received by the Florida station from California.

"Mealy bugs are often quite destructive in citrus groves of this state. Last summer they were exceedingly troublesome and caused the loss of thousands of dollars," says J. R. Watson, entomologist, in directing the appeal.

"It was for the purpose of controlling the mealy bug pest that the station secured the lady beetles from California where they have done good work. Since the mealy bugs are scarce right now, we are finding difficulty in providing rations for these friends. If the growers will send in any mealy bugs found, they will help us in rearing the beetles, which are in turn meant to help them. If we are able to raise the beetles in captivity we shall repay those who send us mealy bugs by giving them first option on the beetles, if we succeed in raising enough colonies to send out over the state."

New York's college of agriculture is using the radio to distribute agricultural information to its farmers. Twice a month experts will talk for 30 minutes over the radio. Dean A. R. Mann gave the first talk on March 31, his subject being "The State's Educational Service to Farm Men and Women."

In writing to advertisers, please mention The Citrus Industry.

Mr. Grower— Are You Satisfied?

High quality fruit is absolutely necessary today to bring the grower returns that justify his efforts of production. Many growers are wondering what to do to assure themselves that their crop will be high grade.

Orange Belt Brands

of fertilizer are made for the grower who wants to use "what is necessary" rather than "what is cheapest." Our fertilizers are the HIGHEST QUALITY that can be produced—they will produce the HIGH QUALITY fruit that you expect.

We will gladly help you solve your fertilizer problems thru our Field Service Department.

ORANGE
BELT
BRANDS

Lyons Fertilizer Company

Eight Floor, Florida Citrus Exchange Building

Tampa, Fla.

"Quality Fertilizer for Quality Fruit."

Dusting Sulphur

Equal to the Best—

Better than the Rest.

For the lowest cost per tree dusted the grower will insist on NATIONAL BRAND OF DUSTING SULPHUR. Supplied in three grades which insure getting that grade which will best operate in his duster.

EXCELSIOR FLOWERS OF SULPHUR, 100% Pure

IDEAL DUSTING SULPHUR, 99½% Pure

IDEAL DUSTING SULPHUR 95-5

(The 95-5 Dusting Sulphur contains 95% of 99½ Pure Superfine Dusting Sulphur and 5% Hydrated lime of unexcelled fineness).

In the three grades of Sulphur we are offering, the Florida Growers get material of exceptional quality and fineness assuring great covering power.

In buying Dusting Sulphur, fineness and bulkiness controls the cost per tree dusted, as much as does the cost per ton. It therefore behooves the grower to insist on material of fine, fluffy texture to insure lowest cost per tree dusted. NATIONAL BRANDS ARE NOTED FOR THESE CHARACTERISTICS AND ARE ALWAYS UNIFORM IN QUALITY.

NATIONAL SULPHUR CO.

New York City

NOTE: Our various brands of Dusting Sulphurs are marketed in Florida by the Florida Agricultural Supply Co., and Wilson & Toomer Fertilizer Co., and may be purchased through any of their salesmen or at their branch warehouses.

SCHNARRS SPRAY FORMULA

The Standard for 15 Years

For White Fly and Scale Insects

SCHNARRS

SCHNARRS

Lime Sulphur Solution

Oil and Sulphur Mixture

For Rust Mite,

For White Fly, Scale

Red Spider and Scab

and Rust Mite

Schnarr's Superfine Dusting Sulphur

99½% pure sulphur with lime and special spreader. A Superfine Thoroughly Tested Standard Product, for Control of Rust Mite, Dusting Beans, Asparagus Ferns, Strawberries, etc.

Send for new price list which includes specifications of Hand, Barrel and Economy Line of Power Sprayers, Dusters, Spraying and Dusting Schedules and other timely and helpful information.

J. SCHNARR & COMPANY

Manufacturers of Schnarrs Standard Spray and Dust Mixtures

ORLANDO, FLORIDA

Tampa

Winter Haven

Larkins

New Method Gas Attack Used to Protect Lawns Against Chinch Bugs

Florida State and Federal Entomologists Announce Findings of Their Experiments

War has been declared in the city of Orlando, but the warfare which may be seen there almost any day is of a new order. The declaration of war in this case was made by many prominent residents of the city, spurred to action by the devastated condition of their lawns of St. Augustine grass. And the enemy, the invader against which the forces of science have been mobilized, is the Chinch Bug, an insect which feeds on St. Augustine grass, and by killing the plants has caused the appearance of large brown spots in some of the most beautiful lawns of the city.

General information about the chinch bug has not been widely published, but the first record of very serious damage caused by the chinch bug was made about 1783, in North Carolina. It is also a well-known fact that the insect infests many other sections of the United States, and that it has caused untold losses to crops, especially the corn crops of the middle west, where many millions of dollars have been lost to this plague.

The chinch bug is found in Florida, too, but there the feeding activities of the pest have been confined for the most part to various species of grasses. Unfortunately, one of its favorite foods is St. Augustine grass, the variety likewise favored so widely for their lawns by thousands of Florida home owners.

Chinch Stabs Grass and Sucks Sap

This is how the enemy carries on its warfare. The chinch is a very small insect, armed with jointed beaks which bear lancets for piercing the stems of the grass. Every time the chinch stabs a grass blade sap runs out and is sucked into the bug's stomach.

But this is not all the harm it does. The chinch invariably pierces low down, near the surface of the soil, so that its feeding affects the entire grass plant with one blow. A reddish stain is left by the insect, and soon the plant's cells begin to die. The grass is dwarfed, and soon dies. This leaves the brown spots on the lawns which have moved so many owners to action fighting the chinch bug.

The chinch bug is an insect which cannot be successfully checked without the use of artificial means of control. Many chemicals have been

attempted in an efficient and economical control of the chinch bug. The most satisfactory, according to A. H. Beyer, assistant State Entomologist at the Experiment Station in Gainesville, is the new chemical Calcium Cyanide, which releases a gas deadly to the chinch bug. And it is this gas with which residents of Orlando have been waging their warfare on the pest.

Entomologist Describes "Gas Attack"

In a recent statement published in Orlando, Mr. Beyer said that his "introductory experiments in chinch bug control were conducted with the use of nicotine sulphate or tobacco dust, and also the introduction of tobacco stems to the lawn. Nicotine sulphate spray was applied at the rate of one part to 800 parts of water. In most cases these experiments were not found very effective because of the peculiar nature of the insect's feeding habits upon the grass attacked, as mentioned elsewhere in this paper. The most effective results in control were obtained by the use of calcium cyanide, a newly produced chemical.

"A series of experiments," continues Mr. Beyer, "were conducted with calcium cyanide by sowing the dust broadcast over the lawn. Calcium cyanide is manufactured in three forms, flakes, granules and powdered or dust. All of these forms were used in the experiments, but the most effective results were obtained by the use of the dust. This was sown broadcast over the lawn. Different applications were made, ranging at the rate of from 60 pounds to 200 pounds per acre. The dust was applied in the heat of the day when the lawns were perfectly dry. An inspection from 12 to 24 hours after the application of the dust showed that the most effective results were produced by the application of the dust at the rate of 150 pounds per acre."

Method of Applying the Dust

Mr. Beyer then goes on to tell how the dust is applied: "The methods used in applying the dust with most satisfactory results were first, by means of the fan or blower duster. The bellows duster was not found to be so satisfactory because of its intermittent flow of dust. Another method which was found to be quite satisfactory was the use of a large can or bucket with a 6 or 8 penny

nail to form a sifter top. By this ingenious device the dust can be sifted uniformly over the lawn. Under favorable conditions the most effective killing results were from 80 to 95 per cent of the chinch bugs.

"The dust should be applied when there is as little wind as possible during the day, and the operator should be careful not to get his head directly over the container, or to breathe in the dust or fumes from the freshly opened cans. Where this precaution is observed there is no danger in handling the material in the open air."

A statement has also been issued by Mr. W. W. Yothers, the Federal entomologist, concerning his observations of chinch bug activities in Florida feeding upon St. Augustine grass. Mr. Yothers, has experimented, too, with the new chemical, according to his report which says in part:

"A new remedy has been found to kill this insect. This is calcium cyanide dust applied by means of a dusting can or sifter. This dust produces hydrosyanic gas when it comes in contact with atmospheric moisture. This method is comparatively inexpensive and it is no longer necessary to spend \$25 to \$100 on a lawn and have it ruined by the ravages of this pest. Considerable experimental work has been carried on with this material on chinch bugs by the state university experiment station, and in a forthcoming publication it will be recommended."

Little need be added to the comments of these scientists who have not in the least exaggerated the devastating powers of the chinch bug, and whose remarks come as a timely warning to those who have begun to worry about the brown spots, invariably symptoms of the chinch bug attack, appearing in their lawns.

Leak holes in any business are usually responsible for failure in that business. This applies to farming and poultry as well as commercial and industrial enterprises. Stop that leak.

Fast milking, with the cow and milker comfortable at ease, pays best.

In writing to advertisers, please mention The Citrus Industry.

Packing House Accessories and Supplies

We carry a complete line
of Accessories and Supplies
for Packing Houses

Clamp Trucks, Car Movers, Nail Strippers, Box Hatchets, Clippers, Picking Bags, Ladders, Car Squeeze, Gang Planks, Paper Holders, Strapping Reels, Strapping, etc.

Write us your needs or for complete
Catalog

Skinner Machinery Company

Gulf Avenue, Dunedin, Florida

Jacksonville's Leading Hotel



Strictly Fire Proof. In the center
of everything.

Rates:

With private bath \$2.50 up. Without bath \$2 up

HOTEL SEMINOLE

Chas. B. Griner, Manager,
Jacksonville, Fla.

Thoroughbreds vs. Scrubs

No matter how closely you follow other requirement of production, if you neglect the cornerstone—selection of proper nursery stock—your efforts will result in failure.

You would not expect to develop a race horse by training one suited to pull a plow. You cannot produce high quality fruit from a scrub tree. Quality, in fruit, as in a horse, must be bred into it. Our trees, avocados, mangos, citrus, ornamentals and various fruits, are quality bred and budded, and will produce gratifying evidence as the years roll by.

There are no avocados today of higher quality than the genuine JOHN B. BEACH trees. They are free from the dreaded avocado scab; they are seed-grafted; the strongest and thriftiest growing trees that science and nature together can produce.

JOHN B. BEACH trees are grown under the personal supervision of the man whose name they bear and there is only a limited stock available, for Mr. Beach produces a tree of quality and not a quantity of trees. While the supply lasts we shall be pleased to furnish them to growers who are particular—who desire to grow fruit that will return them a top price on any market.

We have an excellent assortment of first-grade orange, tangerine, grapefruit, lemon, kumquat, loquat, persimmon, mango and other fruit trees. They are fine as can be bought and specially priced to growers who place their orders NOW.

Our ornamentals are selected with care and can, by proper planting, make your home a place of beauty and a joy forever—a typical Florida tropic home. Write for information or suggestions.

Quality Nurseries

W. D. Sperry, Sole Proprietor

Lakeland, Florida

A. L. CHURCH, President
Brunswick, Georgia

W. E. GARDNER
Commerce Counsel

RUSSELL W. BENNETT
Secretary-Manager

STANDARD CONTAINER MANUFACTURERS
SUCCESSOR TO SOUTHERN CRATE MANUFACTURERS ASSOCIATION
REALTY BUILDING JACKSONVILLE, FLORIDA

Aug. 20, 1924

Mr. S. L. Frisbie,
Editor and Manager,
"The Citrus Industry"
Tampa, Florida.

Dear Mr. Frisbie:

From the view-point of one deeply interested in the economics of production and distribution, your August issue appears to carry more sound constructive matter of importance to Florida interest than any of the many publications that come under the observation of the writer.

Your advocacy of quality, service, economy and hard work is, of course, the basis upon which prosperity is founded; a practice of these principles the only way in which any people may excell.

Permit me to offer you most hearty congratulations and sincere thanks.

Yours very truly,

RUSSELL W. BENNETT.

**FLORIDA EAST COAST RAILWAY COMPANY
FLAGLER SYSTEM
INDUSTRIAL DEPARTMENT**

J. E. Ingraham, Vice-President
H. S. McLendon, Agricultural Agent

**ASSOCIATED LAND COMPANIES
MODEL LAND COMPANY
CHULUOTA COMPANY
PERRINE GRANT LAND COMPANY**
Officers

J. E. Ingraham, President
Sidney Harrison, Secy. & Treas.
W. R. Kenan, Jr., Vice-President
C. S. Brumley, Asst. Secy. & Treas.
J. D. Ingraham, Sales Agent

Model Land Company has large acreages of the best types of agricultural and grove lands for sale. Some of this land is situated in drainage districts; several of these districts have been completed, others are nearing completion; still other tracts of land are located where there is no special drainage necessary.

Chuluota Company has exceptionally fine residential property as well as agricultural and grove lands for sale, in a beautiful high, rolling, pine, fresh-water lake region of Seminole County. This is situated on the Okeechobee Branch of the Florida East Coast Railway, and can also be reached by splendid highways from either Sanford or Orlando. Climatic conditions are fine in this locality the year round.

All the land companies will sell in large or small tracts, cash or terms. Their lands are located in all the East Coast Counties; principally in the following: Monroe, Dade, Broward, Palm Beach, St. Lucie, Osceola, Seminole, Flagler and St. Johns.

For definite information or particulars write the Main Offices or the local agents for sale of the Company's lands.

Local Agents Appointed for Sale of Lands

J. A. Rowand	St. Augustine, Fla.
C. D. Brumley	Chuluota, Fla.
D. E. Austin	Fort Pierce, Fla.
J. B. McDonal Co.	West Palm Beach, Fla.
M. C. Frost	Dania, Fla.
Pepper & Potter	Miami, Fla.
J. B. Reilly	Miami, Fla.
P. L. Wilson	Key West, Fla.
A. R. Livingston (Cape Sable Lands)	Homestead, Fla.
W. H. Phillips	Kenansville, Fla.
L. B. Bouchelle	New Smyrna, Fla.
Ralph Crosby	San Mateo, Fla.

Main Offices: City Building, St. Augustine, Florida.
Jacksonville Office: 239 West Forsyth Street.

Florida Fruits and Flowers

A Monthly Magazine devoted to diversification in fruit growing and to home and civic ornamentation.

The kind of a magazine you will enjoy in your home. It tells of the different kinds of fruits which can be successfully grown in Florida and it aids with helpful suggestions about ornamentals and flowers for your home or community.

FLORIDA FRUITS AND FLOWERS costs but \$1.00 for twelve months. Pin a check or a dollar to this notice and mail to

Florida Fruits and Flowers
Bartow, Fla.

Gulf Fertilizers and Service Mean

Quality and Profits

Some growers fertilize in such a way as to produce a great quantity of fruit. They get plenty of fruit but of a poor grade. Other growers, farseeing and careful, fertilize to produce high grade quality fruit—they are not interested in just the yield, they want grade, shipping quality, color—that is how they make money.

Fertilizer is not a substitute for work or brains in grove culture. It is not magic. It will not make a successful grower of one who is careless and indifferent. Fertilizer varies in quality like fruit, tobacco, cotton or cloth. High grade fertilizer, like the GULF BRANDS, is what develops fruit to its greatest degree of perfection.

The quality of GULF BRAND FERTILIZER is long remembered after the price is forgotten. The quality of GULF products, the company's ability to render intelligent and dependable service to meet the needs of growers, is the keynote of this company's operations.

GULF BRAND FERTILIZERS can help YOU to produce money-making crops. GULF service will gladly inform YOU how to use the proper fertilizer that your kind of soil needs. Be sure that your fall program includes both GULF BRAND FERTILIZER and GULF SERVICE.

The Gulf Fertilizer Co.

Warehouses:

Winter Haven,
Bradentown,
Frostproof,
Lake Wales
and stocks
at other
points.



Citizens
Bank
Building
Tampa,
Florida

NOTES OF THE TRADE

CANNERS CANNOT USE FRESH FRUIT TRADE MARK

In a recent decision of importance to all organizations engaged in handling farm products, the patent office has upheld the American Fruit Growers, Inc., in its claim that its advertised Blue Goose trade mark, used on fresh fruits and vegetables, cannot be used by others on canned goods.

The decision is of particular interest to co-operative associations and other growers and packers of fruits who use a dual trade mark system. Quite a few organizations in the United States use a trade marking system similar to the American Fruit Growers, which preserves the brands and trade marks of the individual shippers and advertises all these brands and trade marks under a general trade mark—the Blue Goose.

The patent office held that the American Fruit Growers did not sacrifice any rights in permitting the growers for whom it sells fruit to use its trade mark on their fruit, under the supervision of the American Fruit Growers, Inc.

The opinion was handed down June 20 in the case of the application of the Fruit Belt Preserving Co., which was opposed by the American Fruit Growers, Inc.

The decision was as follows:

"This is an opposition filed under the provisions of Section 6 and involves the right of the applicant to registration of the notation 'Blue Goose' on canned fruits and vegetables.

Basis for Opposition

"An inspection of the notice of opposition discloses that damage is predicated on prior use in trade of the same notation usually displayed with the representation of a blue goose on fresh citrus fruits, deciduous fruits and vegetables.

"The testimony clearly shows that the opposer produces and sells large quantities of the fruits specified in the notice of opposition and that these have been sold by it in trade with the mark relied upon as of a date long prior to Feb. 25, 1921, the earliest date claimed by the applicant for use in trade of the mark disclosed in its application involved herein.

"In the answer filed by the applicant the defense set up is that canned

fruits on the one hand and fresh citrus fruits and deciduous fruits and vegetables on the other do not possess the same descriptive properties within the meaning of Section 5. In support of this contention, the applicant relies on the differences in these goods in appearance, method of production and trade practices.

"It is probable that the average purchaser would not, in view of these differences, be likely to confuse one with the other; nevertheless, it does not necessarily follow that a purchaser of canned fruits bearing the Blue Goose label would not be led to believe that fresh fruit having the same label thereon did not originate from the same source.

Surplus Fruit Preserved

"It is well known that fruit growers often preserve and can surplus fruits and also that canned fruit is frequently used as a substitute for fresh fruit, especially when fresh fruit is not obtainable. Moreover, contrary to the contention of the applicant, canned fruits are often sold at the same places that fresh fruits are sold, such as delicatessen stores and in the modern chain stores.

"In those cases where fruit growers do preserve and can their surplus fruits the canning and preserving merely subserve the general object of marketing and distributing of the fresh fruits. In the case of the California Packing Co. vs. Poland, 145 MS. D., 154, butter and canned milk were held to possess the same descriptive properties. They are both derived from the same raw product, viz., milk. The examiner is persuaded that within the meaning of Section 5 the goods in issue possess the same descriptive properties.

"In pages 6 and 8, inclusive, of its brief, the applicant seeks to urge a defense which is not found in the answer. This defense is to the effect that the mark used by the opposer is not 'owned' by it within the meaning of the Act of 1905. Since this defense was not contained in the answer, it is believed that the applicant has no right to urge it.

Defense Poorly Founded

"However, even if it were contained in the answer it is believed that this defense is not well founded at law. It is based in the circumstance that the opposer permits other producers, subject to certain conditions,

to use on their containers for fruit the notation Blue Goose.

"These conditions are that the opposer shall supervise the selection and grading of the fruit and control the marketing thereof, the producer under these circumstances being also permitted to use his own brand. Nothing is perceived in these circumstances to negative the fact that, in those cases where the opposer produces and sells its own fruit, it indicates the origin thereof.

"Even in those cases where others are permitted to put their own brand thereon in addition to that of the notation Blue Goose, the fact that purchasers by reason of this other brand are enabled to obtain therefrom the knowledge that it is grown by others than the opposer does not negative the significance that the notation Blue Goose has when this private brand is absent. (McLean v. Fleming, 96 U. S., 295, and C. B. Rouss, Inc., v. Winchester Co., Inc., decided April 28, 1924, by the United States Circuit Court of Appeals for the Second Circuit and reported in T. M. Reporter, May, 1924, Vol. 14, No. 5, Page 182). It is sufficient to establish ownership if a trader owns or controls the goods he offers for sale upon which he places the mark.

Opposition is Sustained

"The contention of the applicant that the notation Blue Goose so used by the opposer merely indicates grade or quality is without force since its use by the opposer involves no restriction on other traders. One of the primary purposes of any mark used in trade is to preserve the good will symbolized thereby to the trader who creates this good-will with the purchasing public by reason of the grade or quality of the goods to which the mark is affixed.

"Accordingly, for the reason hereinbefore pointed out, the opposition is sustained and it is adjudged that the applicant is not entitled to the registration for which it has made application."

A NEW POWER DUSTER

FOR GROVE WORK

A new power grove duster has just been perfected by F. J. DeHaven, manager of the Van Fleet Company of Florence Villa, and is being dis-

THE CITRUS INDUSTRY

Thirty-three

tributed by this company.

The new duster is known as the "Monarch," and is said to be a real innovation in the duster line. It is operated by direct drive, thus eliminating the annoyance of chains and belts, and embodies many other new features which it is said will make it easy and economical of operation.

The immense value of spraying is now established beyond question. The newest method, however, in controlling insects and plant diseases is the dusting method.

The advantages of dusting over spraying are said to be:

- 1st.—Greatest Speed in application.
- 2nd.—Better Timing of application on account of its rapidity.
- 3rd.—Less waste time. Dusting can be done in weather that is unfit for most field operations, such as after a rain, or early in the morning.
- 4th.—Lower cost of machinery.
- 5th.—Lighter Weight of apparatus.
- 6th.—Less liability to break down, by reason of its greater simplicity.
- 7th.—No difficulties regarding securing of water.
- 8th.—With a good machine, dusting has proved equal to liquid spray in the control of many insects and diseases of the citrus groves.

No fruit grower can longer afford to be without a duster. To compete in quality, quantity and low cost of production a duster is necessary. The ease of application encourages one to do the work. Injury to the fruit and foliage is not so likely to occur. The cost is less and the results better. The speed with which dust can be applied gives a real insurance for quality. The Monarch Duster with two men and a team will cover forty acres or better a day. The grower has time for other work.

The Monarch Duster is the product of considerable experiment and an intimate knowledge of the requirements for a good machine, gleaned from observation and conversation with a large number of fruit growers experienced in the use of power dusters.

The principal feature of the machine is its simplicity. No belts or chain to catch limbs or foliage, direct drive.

Material — Aluminum casting throughout. Ball-bearing. Bronze worm gear and hardened steel worm.

Design—To eliminate belt and chain trouble common to various machines now used.

Fan and Agitator—Direct connected to engine by means of special coupl-

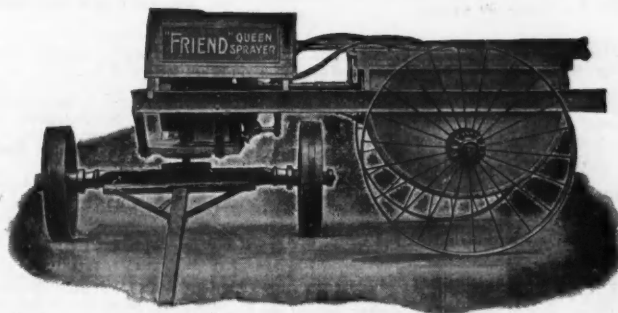
ing to absorb shock. Will handle all makes of sulphur, absolutely cannot crown over.

Hopper and Cutoff—Hopper very large, one piece casting, opening full size of top, same being 20 inches inside, will hold 150 pounds of lime-sulphur, no back pressure from blast pipe. Cut-off very simple consisting of two machined plates operated by handle on top of hopper.

The aim in placing a high grade product on the market such as this machine is, was to overcome the present trouble of making repairs, all working parts are extra large and run in oil tight housings, thus minimizing repairs.

Mr. H. R. Gaventa, who is the Gulf Fertilizer field representative in Hillsboro County, received his B. S. in Agricultural Chemistry and Soil Bacteriology from the Massachusetts Agricultural College. Following his graduation from that institution, Mr. Gaventa spent four years in the ranks of the Armour Fertilizer Works, thoroughly acquainting himself with the various kinds and combinations of fertilizers, the application and their effects on soils.

A year and a half ago, Mr. Gaventa became connected with the Gulf Fer-



THE "FRIEND" SPRAYER

Endorsed by hundreds of
Florida growers

Don't wait until the last minute to place your order for a Sprayer.
Do your investigating now, before you need it.
If you have an old sprayer of any make, let us figure with you on putting a
"FRIEND" Motor Pump on your present sprayer.
Write for catalogue.

Citrus Growers Supply Co.

State Distributors

303 Krause Bldg.,

Tampa, Florida

Thirty-four

tilizer Company, of Tampa, and took the Gulf factory and field course of training, which includes the making of fertilizer, spraying materials and



H. R. GAVENTA

insecticides and practical application of these materials in the field. As stated above, he is Field Representative for the Gulf Company and devotes his time entirely to Hillsboro county.

CITRUS GROWERS PROTEST CUBAN FRUIT ADMITTANCE

State Plant Commissioner Wilmon Newell has filed a protest by wire to the federal horticultural board at Washington against any modification being made of the present quarantine against the importation into Florida ports of citrus fruits from Cuba and the Isle of Pines.

Much concern is being felt by Florida growers of citrus fruits, Commissioner Newell says, over persistent rumors that the federal horticultural board is contemplating a modification of the existing ordinance which was enacted to prevent the infection of Florida fruits with foreign plant diseases.

Commissioner Newell's telegram follows:

"Apparently authentic reports continually reaching us indicate the federal horticultural board is seriously contemplating modification of quarantine to permit entry Cuban and Isle of Pines fruits through southern ports. These reports are current throughout Cuba and Florida in fruit growers and transportation circles and seem to indicate assurances have been

THE CITRUS INDUSTRY

given from Washington that action of a probably favorable nature will be taken immediately.

"Florida plant board emphatically protests against admission, citrus fruits from Cuba republic through south ports. We cannot but feel that the entry of these fruits into the United States through any port is fraught with danger to our horticulture. We know that Cuban plantings have been exposed to infestation by several fruit flies, that Mexican citrus fruit in large quantities heavily infested with Mexican orange maggot have entered Cuba despite Cuban quarantine, that steamers from Spain carrying Mediterranean fruit fly infested fruit lies in Cuban ports at frequent intervals, that Spanish fruits have been vended on the streets of Havana and that fruit fly infested grapefruit has been found in Isle of Pines."

Classified Advertisements

The rate for advertisements of this nature is only five cents per word for each insertion. You may count the number of words you have, multiply it by five, and you will have the cost of the advertisement for one insertion. Multiply this by the total number of insertions desired and you will have the total cost. This rate is so low that we cannot charge classified accounts, and would, therefore, appreciate a remittance with order. No advertisement accepted for less than 50 cents.

REAL ESTATE

FOR SALE—5 and 10 acre farms, all cultivated ready for seed. \$100 per acre on easy terms. American Development Co., Arcadia, Fla. 2t

10 ACRE ORANGE, grapefruit grove, 6 years old, Lakeland Highlands, next to Haskell Townsite on Dixie Highway, near Haskell station and packing house Owner, H. J. Strimple, Penns Grove, N. J.

THE GROVE YOU WANT—You'll find it fully described and correctly priced in our new booklet "Groves and Farms" just issued. Send for copy. Dotson & Company 816½ Franklin St., Tampa, Florida.

WILL EXCHANGE West Texas cattle ranch for unimproved or improved land in Florida. What have you? Give price and full particulars. T. E. Bartlett, 3410 McKinley Ave., El Paso, Texas.

EARLY BEARING Papershell Pecan trees, budded or grafted and guaranteed. Great shortage this year. Write for catalog today. Bass Pecan Company, Lumberton, Miss.

Want to hear from owner having farm for sale; give particulars and lowest price. John J. Black Chippewa Falls, Wisconsin.

WANTED—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin. June-1t

NURSERY STOCK

AVOCADOS—Priced from 85 cents up, in hundred lots depending on variety.

Good assortment varieties, large plants, prompt shipment. Let us quote you. REASONER BROTHERS, Oneco, Fla.

FOR SALE—Cleopatra Mandarin seedlings. September delivery, enter order now. Cavendish banana plants and avocado trees. Write for price list. R. E. Skinner, Hillsboro Hotel, Tampa, Florida. May-4t

Owing to the large acreage which will be planted to grapes the coming season it will be necessary to reserve plants early. Our plants are true to name, vigorous and well rooted. Reserve your plants now. Write for booklet No. a2. SOUTHERN ADAPTED NURSERIES
Bartow, Fla

POLK LAKE NURSERIES

Offer to the grower young trees of standard variety, backed by 30 years of nursery experience and a guarantee which only honest dealing can justify. For full information address A. H. Sloan, Box 413, Bartow, Fla.

BANANA PLANTS for sale. Improved Cavendish, Hart, Orinoco, Ladyfinger. Information free. W. E. Bolles, Oldsmar, Fla. 1t

FOR SALE—Peas and velvet beans of all kinds. New bags, even weights. All peas recleaned. H. M. Franklin, Tonnille, Ga. Mar.-4t

MISCELLANEOUS

FOR SALE—One second hand Wallis tractor in A-1 condition. Will sell cheap for cash. King Lumber and Manufacturing Company, Nocatee.

WHITE WYANDOTT Cockrels, regal strain—the best in the country, direct from Martin pens. Utility and show birds \$5.00 each; also eggs for hatching \$5.00 per 15. W. A. King, Gen. Del., St. Petersburg, Florida.

FOR SALE—Dairy and stable manure, car lots. Link & Bagley, Box 464, Tampa, Florida. 6t

COMPETENT—Citrus Grove Superintendent will be open for position after Sept. 1st. Care Citrus Industry. a-s.

SOUTHDOWN SHEEP, White Rocks, Toulouse Geese, Guinea, Angora, and Milk Goats, Circular free. Woodburn, Clifton, Va.

AGENTS—Quality Shoes, quick sellers. Big commissions, immediate returns! Repeat orders. Experience unnecessary. Write full particulars. Tanners Shoe, 2011 C St. Boston.

FLORIDA INVITES YOU—Write today for our new grove list in Supplement No. 4 to our regular booklet. It's full of bargain offerings and more than likely contains full description of the very grove you'd like to own. Dotson & Company, 816½ Franklin St., Tampa, Florida.

JELLY GUAVAS. Our guava "Snow-white" is the finest jelly guava ever grown. Nice plants 25c each, \$2 for 10; \$18 for 100. Send for free catalog of other fruits and flowers. Royal Palm Nurseries, Oneco, Florida.

FOR SALE—Two Gas Engines, Wood Saw, Fireless Cooker and Cane Mill. R. O. Connor, 434 East Bay, Jacksonville, Fla. Jan 1t

WANTED—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

FOR SALE

Remington Portable Typewriter with standard keyboard. Has all advantages of larger machines. Ideal for farm and home use. \$60. cash or sold on easy terms. Remington Typewriter Co., 103 Parker St., Tampa Florida.